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ABSTRACT

The data presented in this report were compiled from the National Science Foundation's fiscal year 1989 Survey of Scientific and Engineering Expenditures at Universities and Colleges. Expenditures include science and engineering (S/E) costs for separately budgeted research and development (R&D). This includes all funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. Expenditures are funds actually spent by an institution during its fiscal year. Separately budgeted R&D equipment purchased from current funds includes all research equipment purchased under sponsored research project awards. Capital expenditures for R&D equipment may include fixed or movable furnishings and scientific equipment, facilities integral or ancillary to R&D efforts, or special separate facilities that house S/E apparatus. Capital expenditures also refer to any article of nonexpendable tangible personal property having a useful life of more than 2 years and an acquisition cost of $500 or more per unit. Federally funded research and development centers (FFRDCs) are R&D-performing organizations that range from the traditional contractor-owned/contractor-operated or government-owned/contractor-operated organizational structures to various degrees of contractor/government control and ownership. These organizations are formed to achieve a particular R&D objective that cannot be met as effectively by existing resources. Data presented in trend tables are assembled from the most recently completed survey cycle. (KR)

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GENERAL NOTES

The data presented in this report were compiled from the National Science Foundation's (NSF's) fiscal year (FY) 1989 Survey of Scientific and Engineering Expenditures at Universities and Colleges. They refer to science and engineering (S/E) expenditures for separately budgeted research and development (R&D). Terms used in institutional accounting procedures are incorporated throughout the tables.

The phrase **"separately budgeted research and development (R&D) expenditures"** includes all funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. Expenditures are funds actually spent by an institution during its fiscal year. Separately budgeted R&D equipment purchased from current funds includes all research equipment purchased under sponsored research project awards. Capital expenditures for R&D equipment may include fixed or movable furnishings and scientific equipment, facilities integral or ancillary to R&D efforts, or special separate facilities that house S/E apparatus. Capital expenditures also refer to any article of nonexpendable tangible personal property having a useful life of more than 2 years and an acquisition cost of $500 or more per unit, as defined in section J.13 of OMB [Office of Management and Budget] Circular A-21 (revised).

Federally funded research and development centers (FFRDCs) are R&D-performing organizations that range from the traditional contractor-owned/contractor-operated or government-owned/contractor-operated organizational structures to various degrees of contractor/government control and ownership. These organizations are formed to achieve a particular R&D objective that cannot be met as effectively by existing resources.

The terms **"imputation"** and **"imputed data"** refer to the computerized process by which NSF develops estimates of data when institutions do not furnish the statistics upon request. This process develops estimates based primarily on key data items reported in prior-years' surveys when available. When not available, estimates are based on figures derived from data of respondent institutions that have similar characteristics, including highest degree granted and type of institutional control (public or private). In this publication the letter "I" is used to identify imputed data and the letter "E" is used when respondent institutions indicated that their data were estimated or when data required slight mathematical adjustments.

Data presented in trend tables are assembled from the most recently completed survey cycle. Since prior-years' data are reviewed for consistency with current-year's responses and, when necessary, revised in consultation with institutional respondents, references to prior-years' data should be restricted to this document.

Requests for additional information concerning the survey findings for the current or prior surveys should by directed to Mrs. Marge Machen at the following address:

Science and Engineering Activities Program
Room L-609
Division of Science Resources Studies
National Science Foundation
Washington, DC 20550

(202) 634-4673

SECTION A. TECHNICAL NOTES

Scope of the Survey

Data for the National Science Foundation's (NSF's) fiscal year (FY) 1989 report on research and development (R&D) expenditures were collected from a sample of 459 institutions of higher education in the United States and outlying areas. Those institutions were selected from the universe of 595 schools that grant a graduate science or engineering (S/E) degree and/or perform activities for which at least $50,000 has been funded from separately budgeted R&D expenditures. The sample population includes all doctorate-granting institutions, all historically black colleges and universities (HBCUs) with R&D expenditures, and a random sample of all other institutions.

In addition, the survey included 18 federally funded research and development centers (FFRDCs). To qualify, an FFRDC must be engaged in basic or applied research, development, or management of R&D activities, and the results of these activities must be directly monitored by the Federal Government--usually a single agency--in a relationship expected to be maintained on a long-term basis. The center must be operated, managed, and/or administered by either a university or consortium of universities as an autonomous organization or as an identifiable separate operating unit of its parent institution. Finally, 70 percent or more of the center's financial support must be received from the Federal Government.

Although the same survey form (NSF form 411) was used to collect data from both academic institutions and FFRDCs, the resulting data are presented separately in this report. The survey population was reviewed prior to mailing the questionnaires to ensure that each institutional classification was accurate. Characteristics of the schools were reviewed before and during the course of the survey to determine if changes had occurred (i.e., in highest degree granted or in terms of school openings, closings, or mergers). Names of institutions newly added to the HEP 90 Higher Education Directory were reviewed to determine their eligibility for inclusion in this survey 1/.

1/ Higher Education Publications, Inc., Falls Church, VA, 1990.

The Survey Instrument

The questionnaire used in the FY 1989 survey was unchanged from that of prior years. The "crosswalk," which is a standard part of the survey package, relates the S/E fields designated in NSF's survey to those of the National Center for Education Statistics (NCES) Classification of Instructional Programs. The crosswalk is provided to aid respondents whose institutional recordkeeping systems are organized according to these NCES classifications.

Most major R&D performers have incorporated into their recordkeeping systems the data that are essential to complete this survey, thereby ensuring a consistent format from one year to the next. Such consistency yields the most useful statistics for time series. As a rule, information to complete this questionnaire is found within the institutions' year-end accounting records.

The survey questionnaire consisted of four main items:

> **Item 1** requested that institutions report their total current expenditures for separately budgeted S/E R&D by source of funds and indicate the percentage of the total and percentage of the federally financed portion that are considered basic research. Care should be observed when interpreting data on source of funds; for example, industry R&D support is limited to grants and contracts for R&D activities from profit-making organizations, and the total reported excludes research funded through unrestricted accounts and from corporate foundations, endowments, and fellowships to students. An increasing number of institutions have linkages with industry and foundations via subcontracts, which complicates the identification of funding source. In addition, institutional policy may determine whether unrestricted state support is reported as state or as institutional funding.
>
> **Item 2** asked for total and federally financed current fund expenditures for separately budgeted R&D activities by detailed S/E fields. Major fields and subdisciplines remain unchanged from the FY 1988 questionnaire. When interpreting these data at the detailed discipline level, users should keep in mind that there is considerable interdisciplinary activity and/or overlap among subdisciplines.
>
> **Item 3** requested that institutions specify the portion of total expenditures and the portion of federally financed expenditures reported in Items 1 and 2 that

were used for the purchase of research equipment out of current funds. This includes all research equipment purchased under sponsored research project awards and disbursed in the same detailed disciplines as in Item 2. These data are of special interest to Federal and institutional policy makers in determining current funding levels for scientific research instrumentation.

Item 4 solicited data on capital expenditures for facilities and equipment (as defined in section J.13 of OMB Circular A-21, revised) for research, development, and instruction by broad S/E field, showing amounts from Federal and other sources. A more detailed breakdown of capital expenditures data in which S/E facilities and equipment for R&D activities are separated from those devoted to instruction is not readily available in some institutions' records. The classification systems and the methods used to capture data for Item 4 differ widely among institutions; therefore, caution should be exercised when interpreting these data. For example, some institutions use space allocation data to estimate capital R&D expenditures. Some institutions classify equipment and facilities used by undergraduates as "instructional" and those used by graduate students as "research."

The Response Rate

The FY 1989 survey questionnaires were mailed in October 1989. Every effort was made to maintain close contact with respondents in order to preserve both consistency and continuity in the resultant data. Questionnaires were carefully examined upon receipt for completeness. Computerized facsimiles were then prepared of the survey data for each institution, comparing the current and 2 previous years' data and noting any substantive disparities. These facsimiles were mailed to the respondents so that they could provide revisions before final processing and tabulation of the data took place.

Respondents were asked to explain significant discrepancies between current and prior-year reporting patterns previously verified as correct. They were encouraged to correct prior-years' data if anomalies were identified. When updated or amended figures covering past years were submitted, trend data were correspondingly changed by NSF. Similarly, if a respondent institution underwent an organizational change, such as a merger, NSF incorporated the effects of such changes into prior-years' data.

By the survey closing date in late June, forms had been received from 448 universities and colleges out of a sample population of 459, resulting in a 97.6-percent response rate. Responses were received from 98.5 percent of all doctorate-granting institutions, where more than 99 percent of the R&D expenditures in S/E fields was disbursed. Also, forms were received from all 18 FFRDCs. Tables A-1a and A-1b give a detailed breakdown of the response rates by degree granted and by sampling stratum (sampling strata are defined under Sampling, Weighting, and Standard Errors of the Estimates).

The National Total and Imputation

To provide a national estimate for universities and colleges of R&D expenditures for FY 1989 it was necessary to implement three statistical procedures. First, data were estimated for the approximately 2 percent of the sample population that had not responded by the closing date of the survey by **"imputation,"** a technique used consistently since FY 1976. Second, data were either imputed or estimated for universities and colleges that submitted only partial responses. The combined imputed and/or estimated amounts totaled $66 million for R&D expenditures at universities and colleges. Third, the sample total was weighted to compensate for those universities and colleges that were in the survey universe but not in the survey sample (this procedure is described under Sampling, Weighting, and Standard Errors of the Estimates). This inflated the national total of R&D expenditures at universities and colleges for FY 1989 by $118 million to equal to $14,987 million, as shown on table A-2.

Tables A-3a and A-3b present a breakdown of both the imputed and/or estimated amounts, and the amount of the weighted inflator by broad S/E fields. The dollar amount imputed and/or estimated is displayed along with the percentage it represents of the national estimate for universities and colleges in that particular field. Also given is the amount of the weighted inflator for that field. The amount imputed or estimated and the amount of the weighted inflator are similarly broken down by source of funds in table A-4.

A significant number of surveyed institutions have been responding only intermittently in past years, providing data one year, not responding for one or more subsequent years, and then providing data again. For the years in which no response was received, data have been imputed as previously described. Although the imputation algorithm accurately reflects national trends, it cannot account for reporting anomalies at individual institutions. For this reason, a separate back casting of previous years' data was performed following current-year imputation.

For each institution, formerly imputed key variables for Items 1 to 3 were compared with subsequent submissions to determine whether the imputed data accurately represented the growth/decline patterns shown by reported data. Re-estimation was applied when the imputed data were not consistent with reported data. If data were reported for fiscal years 1985 and 1989 but not for the intervening years, for example, the difference between the reported figures for each item total was calculated and evenly distributed across the intervening (1986-88) years. The new figures were spread across disciplines (Items 2 and 3) or sources of support (Item 1) on the basis of the most recent reporting pattern. These procedures resulted in much more consistent reporting trends for individual institutions but had little effect upon aggregated figures reflecting national totals.

Sampling, Weighting, and Standard Errors of the Estimates

NSF converted from a full population survey of 595 institutions to a sample survey of 459 institutions for the FY 1989 cycle. During the FY 1989 survey cycle, the survey design separated universities and colleges from FFRDCs. In turn, universities and colleges were divided into the following four strata (three certainty strata and one probability stratum):

(1) **A certainty stratum of doctorate-granting institutions.** This stratum contains 305 universities and colleges that grant doctorate degrees in S/E fields. Excluded from this stratum, though, are all doctorate-granting HBCUs and university system campuses.

(2) **A certainty stratum of HBCUs.** This stratum includes all 70 historically black colleges and universities (including those that are doctorate-granting institutions or university system campuses).

(3) **A certainty stratum of university system campuses.** This stratum includes 36 university system campuses. Note that no HBCUs would be included in this stratum even if they were university system campuses.

(4) **A probability stratum of master's or below degree-granting institutions.** This stratum includes 48 master's or bachelor's and no S/E degree-granting institutions out of a survey stratum universe of 184. (Note that none of the universities or colleges included in this stratum are either HBCUs or university system campuses). This stratum had a sampling ratio of 0.26.

The data in this report are weighted to represent national-level R&D expenditures for universities and colleges (as mentioned previously under The National Total and Imputation). The sample data, after imputation and estimation, were inflated to produce universe estimates by weighting the individual questionnaire data values by the inverse of the sampling ratio. Thus, in aggregating data for institutions from the probability stratum for tabulation purposes, each datum value was weighted by the inverse of the sampling ratio.

Estimates derived for institutions in the probability stratum were based on a sample, and the relative standard error (coefficient of variation) of an estimate was then obtained by dividing the standard error by the estimate itself, expressed as a percentage of the estimate. The estimates will differ to some degree from the numbers that would have been obtained if data had been collected from the total population of eligible institutions.

The standard errors and coefficients of variation for each major S/E field are shown in table A-5. For example, for total academic R&D expenditures of $15 billion, the standard error of the estimate is $40 million at the 95-percent confidence level, with a coefficient of variation of ±3 percent. Similarly, for the estimate of $9 billion in nationally federally financed expenditures, the 95-percent confidence limits are plus or minus $17 million, with a coefficient of variance of ±2 percent.

Selected Institution Data Anomalies

Although institution trend data are generally reasonably consistent from year to year, data for individual institutions may vary considerably. These anomalies may reflect true increases or decreases in expenditures or may be the result of changes in reporting methodology. Explanations of particularly large discrepancies between FY 1988 and FY 1989 data provided by specific institutions include the following:

- The University of Miami shows an increase in the "all other sources" field of $7 million over last year's reported figure. This increase was caused primarily by the startup of the new Miami Project to Cure Paralysis. The University of Miami has also increased some $15 million in medical sciences because of the expansion of existing programs.
- The University of South Florida has received a large $25 million grant that is reflected in electrical engineering and Federal funding. The grant, from the Defense Advanced Research Projects Agency, is new this year and is expected to continue in the future.
- The Uniformed Services University of Health Sciences shows an increase in institutional funding and medical sciences because of an increase in funding from the Henry Jackson Foundation. Although this is a pre-existing fund, there has been a considerable increase in the amount this year.

Data Availability and Distribution

Data published in this report are also available in machine-readable form on magnetic tapes. A multi-year data tape is available that contains data for FY 1972 through FY 1989; single-year tapes may also be purchased for any of these years. Information on tape formats and years available, with prices and instructions for ordering, are contained in the current Supplemental User Guide to Data Tapes, which is updated each year. A general Guide to the National Science Foundation's Surveys of Academic Science and Engineering is also available. Both user guides may be obtained by contacting Mrs. Marge Machen at the following address and telephone number:

Science and Engineering Activities Program
Room L-609
Division of Science Resources Studies
National Science Foundation
Washington, DC 20550

(202) 634-4673

Data for this survey are available on 5-1/4" double-sided diskettes suitable for use on an IBM-compatible personal computer. Persons interested in gaining access to the data on diskettes should contact the NSF Diskette Service at the above address.

Selected data items for individual doctorate-granting institutions are available on computer-generated Institutional Profiles, which consist of data not only from this survey but also from NSF's other two academic S/E surveys: Federal support to universities and colleges and graduate enrollment and postdoctorates. Institutional Profiles for any institution or limited group of institutions may be ordered by contacting Mr. Richard Bennof. He may be reached at the following address and telephone number:

Science and Engineering Activities Program
Room L-609
Division of Science Resources Studies
National Science Foundation
Washington, DC 20550

(202) 634-4673

The CASPAR (Computer-Aided Science Policy Analysis and Research) data base system is an easy-to-use tool for retrieval and analysis of statistical data on academic science and engineering (S/E) resources. CASPAR provides the analyst with an extensive and growing data library with multi-year statistics on the state of higher education in general and on S/E resources specifically. This data library is based on a set of standardized institutional and field of science definitions across the multiple sources used to develop the data base. The CASPAR program includes built-in help capabilities to facilitate the use and interpretation of the data.

CASPAR data are drawn from a number of sources. All are available for individual institutions, by State, and at the national level. Longitudinal data from surveys of universities and colleges conducted by the NSF Division of Science Resources Studies include the R&D Expenditures Survey, Federal Support Survey, and the Graduate Student Survey. Data from surveys of universities and colleges conducted by the National Center for Education Statistics include Earned Degrees, Opening Fall Enrollment, Faculty Salaries, Tenure, and Fringe Benefits, and Financial

Statistics. Data from other sources include the National Research Council Doctorate Program Ratings.

CASPAR is distributed on CD-ROM compact disk. For additional information on CASPAR, write to the following address:

Quantum Research Corporation
ATTN: CASPAR
7300 Pearl Street, Suite 210
Bethesda, MD 20814

TABLE A-1a. R&D expenditures survey for all institutions

Response rates by type of institution: FY 1989

Highest degree granted	Number in survey universe	Number in sample pop.	Number of complete respondents	Number of partial respondents	Total number of respondents	Response rate
Grand total	613	477	287	179	466	97.7%
Universities and colleges total.....	595	459	270	178	448	97.6%
Doctorate	327	327	184	138	322	98.5%
Master's	177	76	40	33	73	96.1%
Bachelor's and no S/E degree............	91	56	46	7	53	94.6%
FFRDC's total...	18	18	17	1	18	100.0%

SOURCE: National Science Foundation, SRS

TABLE A-1b. R&D expenditures survey for universities and colleges

Response rates by sampling strata and degree granted: FY 1989

Sampling strata	Number in survey universe	Number in sample pop.	Number of complete respondents	Number of partial respondents	Total number of respondents	Response rate
Grand total...........	595	459	270	178	448	97.6%
#1 Doctorates 1/..	305	305	166	136	302	99.0%
#2 HBCU's	70	70	52	12	64	91.4%
Doctorates......	7	7	5	0	5	71.4%
Master's..........	20	20	10	9	19	95.0%
Bachelor's and no S/E degree............	43	43	37	3	40	93.0%
#3 University systems................	36	36	28	6	34	94.4%
Doctorates......	15	15	13	2	15	100.0%
Master's..........	20	20	14	4	18	90.0%
Bachelor's and no S/E degree............	1	1	1	0	1	100.0%
#4 Master's or below 2/.............	184	48	24	24	48	100.0%
Master's..........	137	36	16	20	36	100.0%
Bachelor's and no S/E degree............	47	12	8	4	12	100.0%

1/ Doctorate stratum does not include doctorate-granting institutions that are recorded in either the HBCU stratum or the University systems stratum.

2/ Master's and below stratum does not include master's-granting institutions or bachelor's and no S/E degree granting institutions that are recorded in either the HBCU stratum or the University systems stratum.

SOURCE: National Science Foundation, SRS

Table A-2. R&D expenditures survey for universities and colleges

Imputed and/or estimated amount by type of institution: FY 1989

[Dollars in millions]

Highest degree granted	National estimate of separately budgeted R&D expenditures	Amount inflated due to weighting	Amount imputed and/or estimated	Imputed and/or estimated as percent of total
Total	14,987	118	66	0.4%
Doctorate-granting institutions	14,743	0	61	0.4%
Nondoctorate-granting institutions	244	118	4	1.6%

NOTES: Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation, SRS

TABLE A-3a. R&D expenditures survey for universities and colleges

Imputed and/or estimated amount of separately budgeted R&D expenditures by science/engineering field: FY 1989

[Dollars in millions]

Science/engineering field	National estimate of separately budgeted R&D expenditures	Amount inflated due to weighting	Amount imputed and/or estimated	Imputed and/or estimated as percent of total
Total	14,987	118	29	0.2%
Engineering	2,388	21	31	1.3%
Physical sciences	1,643	21	15	0.9%
Environmental sciences	983	16	20	2.0%
Mathematical sciences	214	3	1	0.3%
Computer sciences	468	4	5	1.0%
Life sciences	8,080	36	46	0.6%
Psychology	238	7	3	1.2%
Social sciences	636	9	7	1.1%
Other sciences	337	1	3	0.9%

NOTES: Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation, SRS

TABLE A-3b. R&D expenditures survey for universities and colleges

Imputed and/or estimated amount of federally financed
R&D expenditures by science/engineering field: FY 1989

[Dollars in millions]

Science/engineering field	National estimate of federally financed R&D expenditures	Amount inflated due to weighting	Amount imputed and/or estimated	Imputed and/or estimated as percent of total
Total	8,972	57	19	0.2%
Engineering	1,380	9	13	0.9%
Physical sciences	1,195	12	8	0.7%
Environmental sciences	645	12	14	2.2%
Mathematical sciences	156	1	**	0.2%
Computer sciences	318	2	8	2.4%
Life sciences	4,773	13	30	0.6%
Psychology	156	5	2	1.1%
Social sciences	211	2	2	0.9%
Other sciences	139	0	1	0.8%

NOTES: A double asterisk (**) indicates that the amount is less than $500,000, but greater than zero.
Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation, SRS

TABLE A-4. R&D expenditures for universities and colleges

Imputed and/or estimated amount of seperately budgeted
R&D expenditures by source of funds: FY 1989

[Dollars in millions]

Source of funds	National estimate of separately budgeted R&D expenditures	Amount inflated due to weighting	Amount imputed and/or estimated	Imputed and/or estimated as percent of total
Total	14,987	118	66	0.4%
Federal government	8,972	57	19	0.2%
State and local government	1,239	20	49	4.0%
Industry	984	14	38	3.8%
Institutional funds	2,710	17	80	2.9%
All other sources	1,083	10	39	3.6%

NOTES: Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation, SRS

TABLE A-5. R&D expenditures survey for all institutions

Standard errors of the estimates (SE) and coefficients of variation (CV)
by science/engineering field: FY 1989

[Dollars in thousands]

Science/engineering field	Separately budgeted R&D expenditures		Federally financed R&D expenditures	
	1.96 SE	1.96 CV	1.96 SE	1.96 CV
Total	40,072	0.3%	17,325	0.2%
Engineering	12,558	0.5%	7,539	0.5%
Physical sciences	8,041	0.5%	6,438	0.5%
Environmental sciences	12,324	1.3%	10,374	1.6%
Mathematical sciences	1,133	0.5%	666	0.4%
Computer sciences	2,003	0.4%	1,034	0.3%
Life sciences	12,404	0.2%	4,752	0.1%
Psychology	4,1[illegible]	1.8%	3,994	2.6%
Social sciences	4,507	0.7%	1,780	0.8%
Other sciences	937	0.3%	0	0.0%

SOURCE: National Science Foundation, SRS

SECTION B. DETAILED STATISTICAL TABLES

To obtain accurate historical data, use only the latest detailed statistical tables for FY 1989 and not data published earlier. Institutions revise prior-year data when important changes occur in reporting practices and program classifications, and only the latest tables incorporate such changes.

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Table B-1. R&D expenditures at universities and colleges, by source of funds: fiscal years 1953-89

[Dollars in millions]

Fiscal year	Total	Source of funds				
		Federal Government	State and local governments	Industry	Institutional funds	All other sources
1953	255	138	37	19	35	26
1954	290	160	42	22	38	28
1955	312	169	47	25	41	30
1956	372	213	53	29	43	34
1957	410	229	60	34	49	38
1958	456	254	68	39	53	42
1959	526	306	76	39	58	47
1960	646	405	85	40	64	52
1961	763	500	95	40	70	58
1962	904	613	106	40	79	66
1963	1,081	760	118	41	89	73
1964	1,275	917	132	40	103	83
1965	1,474	1,073	143	41	124	93
1966	1,715	1,261	156	42	148	108
1967	1,921	1,409	164	48	181	119
1968	2,149	1,572	172	55	218	132
1969	2,225	1,600	197	60	223	145
1970	2,335	1,647	219	61	243	165
1971	2,500	1,724	255	70	274	177
1972	2,630	1,795	269	74	305	187
1973	2,884	1,985	295	84	318	202
1974	3,022	2,032	308	95	368	219
1975	3,409	2,288	332	113	417	259
1976	3,729	2,512	364	123	446	285
1977	4,067	2,726	374	139	514	314
1978 1/	4,625	3,059	414	170	623	359
1979	5,380	3,604	476	194	738	368
1980	6,077	4,104	496	236	837	403
1981	6,846	4,565	546	291	1,008	436
1982	7,323	4,763	616	337	1,115	492
1983	7,877	4,983	626	388	1,303	577
1984	8,617	5,423	690	475	1,413	615
1985	9,686	6,056	754	559	1,622	695
1986	10,926	6,702	916	699	1,873	735
1987	12,153	7,333	1,024	789	2,176	831
1988	13,465	8,181	1,107	870	2,367	941
1989	14,987	8,972	1,239	984	2,710	1,083

1/ Estimated, based on data collected from doctorate-granting institutions only.

SOURCE: National Science Foundation, SRS

Table B-2. R&D expenditures at universities and colleges, by character of work: fiscal years 1953-89

[Dollars in millions]

Fiscal year	Total	Character of work			
		Basic research		Applied research and development	
		Amount	Percent of total	Amount	Percent of total
1953	255	110	43.1%	145	56.9%
1954	290	136	46.9	154	53.1
1955	312	159	51.0	153	49.0
1956	372	200	53.8	172	46.2
1957	410	240	58.5	170	41.5
1958	456	281	61.6	175	38.4
1959	526	343	65.2	183	34.8
1960	646	433	67.0	213	33.0
1961	763	536	70.2	227	29.8
1962	904	659	72.9	245	27.1
1963	1,081	814	75.3	267	24.7
1964	1,275	1,003	78.7	272	21.3
1965	1,474	1,138	77.2	336	22.8
1966	1,715	1,303	76.0	412	24.0
1967	1,921	1,457	75.8	464	24.2
1968	2,149	1,650	76.8	499	23.2
1969	2,225	1,711	76.9	514	23.1
1970	2,335	1,796	76.9	539	23.1
1971	2,500	1,914	76.6	586	23.4
1972	2,630	2,022	76.9	608	23.1
1973	2,884	2,053	71.2	831	28.8
1974	3,022	2,153	71.2	869	28.8
1975	3,409	2,410	70.7	999	29.3
1976	3,729	2,549	68.4	1,180	31.6
1977	4,067	2,800	68.8	1,267	31.2
1978 1/	4,625	-	-	-	-
1979	5,380	3,628	67.4	1,752	32.6
1980	6,077	4,041	66.5	2,035	33.5
1981	6,846	4,596	67.1	2,250	32.9
1982	7,323	4,882	66.7	2,441	33.3
1983	7,877	5,304	67.3	2,573	32.7
1984	8,617	5,735	66.6	2,882	33.4
1985	9,686	6,559	67.7	3,128	32.3
1986	10,926	7,495	68.6	3,431	31.4
1987	12,153	8,398	69.1	3,755	30.9
1988	13,465	8,827	65.6	4,638	34.4
1989	14,987	9,685	64.6	5,303	35.4

1/ Data were not collected in 1978.

NOTE: R&D expenditures by character of work are based on estimates provided by the universities and colleges for basic research.

SOURCE: National Science Foundation, SRS

Table B-3. R&D expenditures at universities and colleges, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total	7,322,745	7,876,861	8,616,682	9,686,358	10,925,519	12,153,437	13,465,094	14,987,279
Source of funds								
Federal Government	4,763,062	4,982,929	5,423,450	6,056,088	6,702,158	7,332,501	8,180,769	8,972,466
State and local governments	616,436	625,741	690,435	753,856	916,333	1,024,448	1,106,935	1,239,110
Industry	337,071	388,091	474,731	559,202	699,130	789,209	869,913	983,574
Institutional funds	1,114,513	1,303,138	1,413,416	1,622,195	1,872,949	2,175,883	2,366,539	2,709,591
All other sources	491,663	576,962	614,650	695,017	734,949	831,396	940,938	1,082,538
Field								
Engineering, total	1,040,859	1,130,327	1,229,014	1,414,922	1,638,228	1,887,492	2,091,190	2,387,593
Aeronautical and astronautical	65,160	69,916	71,831	82,229	93,530	110,065	124,737	146,548
Chemical	83,808	91,174	96,095	109,782	126,197	140,649	154,169	185,087
Civil	115,800	126,465	139,609	153,141	178,745	192,334	226,832	249,552
Electrical	224,461	261,809	294,836	337,479	394,904	449,770	507,894	600,017
Mechanical	142,388	148,820	178,361	206,894	227,031	273,340	300,886	340,280
Other, n.e.c.	409,242	432,143	448,282	525,397	617,821	721,334	776,672	866,110
All sciences, total	6,281,886	6,746,534	7,387,668	8,271,436	9,287,291	10,265,945	11,373,904	12,599,686
Physical sciences	823,363	899,695	999,672	1,147,733	1,285,972	1,390,942	1,547,216	1,643,377
Astronomy	73,125	73,442	80,474	96,083	101,795	108,429	124,438	137,114
Chemistry	308,058	334,982	371,484	421,023	469,275	513,102	567,822	610,394
Physics	366,833	417,037	473,591	550,834	630,244	666,568	732,486	773,000
Other, n.e.c.	75,347	74,234	74,123	79,793	84,658	102,843	122,470	122,870
Environmental sciences	557,353	615,892	643,946	703,180	772,605	830,819	884,522	982,936
Atmospheric	86,668	98,636	102,010	107,696	120,057	128,345	133,668	159,084
Earth sciences	195,272	216,245	227,768	253,931	274,525	284,091	294,559	322,533
Oceanography	198,202	223,931	236,784	257,973	279,992	299,949	333,282	357,663
Other, n.e.c.	77,211	77,080	77,384	83,580	98,031	118,434	123,013	143,656
Mathematical sciences	96,459	106,440	123,261	128,031	151,904	176,871	198,833	214,248
Computer sciences	149,101	175,902	224,637	282,722	322,874	373,086	410,839	467,729
Life sciences	4,016,113	4,303,519	4,712,815	5,282,032	5,892,653	6,532,724	7,257,860	8,079,851
Agricultural sciences	864,681	921,445	954,565	999,674	1,089,949	1,120,938	1,181,841	1,289,521
Biological sciences	1,282,740	1,414,501	1,567,350	1,774,357	1,937,994	2,132,208	2,372,832	2,609,759
Medical sciences	1,745,615	1,835,875	2,040,616	2,327,268	2,625,341	3,015,867	3,387,914	3,836,617
Other, n.e.c.	123,077	131,698	150,284	180,733	239,369	263,711	315,273	343,954
Psychology	130,609	135,669	145,525	158,534	170,705	187,881	213,989	237,945
Social sciences	353,023	344,642	358,317	382,844	462,472	502,098	553,238	636,372
Economics	95,116	98,088	108,494	117,988	135,766	149,685	164,142	186,376
Political science	60,213	54,624	56,110	59,379	68,835	81,221	87,027	108,063
Sociology	78,805	77,102	70,319	75,334	96,608	96,627	110,580	118,554
Other, n.e.c.	118,889	114,828	123,394	130,143	161,263	174,565	191,489	223,379
Other sciences, n.e.c.	155,865	164,775	179,495	186,360	228,106	271,524	307,407	337,227

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-4. Federally financed R&D expenditures at universities and colleges, by science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Field	1982	1983	1984	1985	1986	1987	1988	1989
Total	4,763,062	4,982,929	5,423,450	6,056,088	6,702,158	7,332,501	8,180,769	8,972,466
Field								
Engineering, total	703,810	744,463	786,778	865,371	975,859	1,108,567	1,225,026	1,379,664
Aeronautical and astronautical	52,500	56,220	57,021	64,575	73,670	83,677	97,031	113,109
Chemical	50,069	52,547	54,878	58,574	67,617	69,627	78,058	92,947
Civil	59,572	63,742	72,483	78,993	88,756	90,567	104,475	104,108
Electrical	173,780	193,253	209,379	228,487	260,351	290,953	328,967	388,700
Mechanical	97,374	100,060	118,657	133,588	147,359	177,057	190,593	209,711
Other, n.e.c.	270,515	278,641	274,360	301,154	338,106	396,686	425,902	471,089
All sciences, total	4,059,252	4,238,466	4,636,672	5,190,717	5,726,299	6,223,934	6,955,743	7,592,802
Physical sciences	649,489	699,469	781,609	889,928	982,150	1,047,533	1,153,653	1,195,155
Astronomy	51,610	49,916	53,131	64,393	69,686	71,189	81,471	88,011
Chemistry	230,165	247,342	279,048	312,539	338,027	367,753	405,017	423,711
Physics	306,550	342,500	390,041	453,121	510,291	531,371	575,724	597,664
Other, n.e.c.	61,164	59,711	59,389	59,875	64,146	77,220	91,441	85,769
Environmental sciences	390,701	425,596	444,980	472,612	514,960	540,769	582,786	644,690
Atmospheric	69,313	77,396	82,386	86,034	97,578	105,874	109,218	124,894
Earth sciences	126,852	135,003	139,974	154,141	160,171	159,556	174,515	186,069
Oceanography	153,443	171,542	180,949	187,666	208,063	217,702	238,508	265,923
Other, n.e.c.	41,093	41,655	41,671	44,771	49,148	57,637	60,545	67,805
Mathematical sciences	71,777	76,473	92,303	97,012	114,368	131,377	149,216	155,929
Computer sciences	106,938	127,679	162,811	195,580	232,486	257,092	289,270	317,883
Life sciences	2,502,029	2,585,999	2,826,767	3,183,901	3,487,756	3,829,767	4,318,179	4,772,840
Agricultural sciences	255,300	261,459	268,867	293,999	292,378	297,325	322,290	345,890
Biological sciences	916,037	982,969	1,089,367	1,204,671	1,305,822	1,411,679	1,589,930	1,719,858
Medical sciences	1,252,145	1,261,446	1,374,159	1,576,816	1,742,881	1,963,335	2,216,412	2,505,390
Other, n.e.c.	78,547	80,125	94,374	108,415	146,675	157,428	189,547	201,702
Psychology	89,029	89,656	98,117	106,189	114,373	124,222	140,887	156,260
Social sciences	161,221	146,804	142,959	153,641	172,754	168,183	188,333	211,173
Economics	41,588	38,783	42,392	43,692	45,448	43,423	49,168	50,477
Political science	22,444	20,100	19,049	19,792	20,291	24,128	25,118	29,123
Sociology	46,182	42,835	38,184	40,176	49,557	44,980	49,118	52,802
Other, n.e.c.	51,007	45,086	43,334	49,981	57,458	55,652	64,929	78,772
Other sciences, n.e.c.	88,068	86,790	87,076	91,854	107,452	124,991	133,419	138,872

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-5. Non-Federal R&D expenditures at universities and colleges, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total non-Federal	2,559,683	2,893,932	3,193,232	3,630,270	4,223,361	4,820,936	5,284,325	6,014,813
Source of funds								
State and local governments	616,436	625,741	690,435	753,856	916,333	1,024,448	1,106,935	1,239,110
Industry	337,071	388,091	474,731	559,202	699,130	789,209	869,913	983,574
Institutional funds	1,114,513	1,303,138	1,413,416	1,622,195	1,872,949	2,175,883	2,366,539	2,709,591
All other sources	491,663	576,962	614,650	695,017	734,949	831,396	940,938	1,082,538
Field								
Engineering, total	337,049	385,864	442,236	549,551	662,369	778,925	866,164	1,007,929
Aeronautical and astronautical	12,660	13,696	14,810	17,654	19,860	26,388	27,706	33,439
Chemical	33,739	38,627	41,217	51,208	58,580	71,022	76,111	92,139
Civil	56,228	62,723	67,126	74,148	89,989	101,767	122,357	145,444
Electrical	50,681	68,556	85,457	108,992	134,553	158,817	178,927	211,316
Mechanical	45,014	48,760	59,704	73,306	79,672	96,283	110,293	130,569
Other, n.e.c.	138,727	153,50[illegible]	173,922	224,243	279,715	324,648	350,770	395,021
All sciences, total	2,222,634	2,508,068	2,750,996	3,080,719	3,560,992	4,042,011	4,418,161	5,006,884
Physical sciences	173,874	200,226	218,013	257,805	303,822	343,409	393,563	448,222
Astronomy	21,515	23,526	27,293	31,690	32,109	37,240	42,967	49,102
Chemistry	77,893	87,640	92,436	108,484	131,248	145,349	162,805	186,684
Physics	60,283	74,537	83,550	97,713	119,953	135,197	156,762	175,336
Other, n.e.c.	14,183	14,523	14,734	19,918	20,512	25,623	31,029	37,101
Environmental sciences	166,652	190,296	198,966	230,568	257,645	290,050	301,736	338,246
Atmospheric	17,355	21,240	19,624	21,662	22,479	22,471	24,450	34,190
Earth sciences	68,420	81,242	87,794	99,790	114,354	124,535	120,044	136,464
Oceanography	44,759	52,389	55,835	70,307	71,929	82,247	94,774	91,740
Other, n.e.c.	36,118	35,425	35,713	38,809	48,883	60,797	62,468	75,852
Mathematical sciences	24,682	29,967	30,958	31,019	37,536	45,494	49,617	58,318
Computer sciences	42,163	48,223	61,826	87,142	90,388	115,994	121,569	149,846
Life sciences	1,514,084	1,717,520	1,886,048	2,098,131	2,404,897	2,702,957	2,939,681	3,307,011
Agricultural sciences	609,381	659,986	685,698	705,675	797,571	823,613	859,551	943,632
Biological sciences	366,703	431,532	477,983	569,686	632,172	720,529	782,902	889,902
Medical sciences	493,470	574,429	666,457	750,452	882,460	1,052,532	1,171,502	1,331,226
Other, n.e.c.	44,530	51,573	55,910	72,318	92,694	106,283	125,726	142,252
Psychology	41,580	46,013	47,408	52,345	56,332	63,659	73,102	81,685
Social sciences	191,802	197,838	215,358	229,203	289,718	333,915	364,905	425,199
Economics	53,528	59,305	66,102	74,296	90,318	106,262	114,974	135,899
Political science	37,769	34,524	37,061	39,587	48,544	57,093	61,909	78,940
Sociology	32,623	34,267	32,135	35,158	47,051	51,647	61,462	65,753
Other, n.e.c.	67,882	69,742	80,060	80,162	103,805	118,913	126,560	144,607
Other sciences, n.e.c.	67,797	77,985	92,419	94,506	120,654	146,533	173,988	198,355

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

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Table B-6. R&D expenditures at doctorate-granting institutions, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total	7,206,838	7,755,419	8,483,497	9,544,538	10,769,576	11,997,969	13,289,045	14,743,186
Source of funds								
Federal Government	4,689,451	4,905,224	5,336,924	5,962,822	6,600,405	7,235,732	8,070,317	8,827,983
State and local governments	602,251	613,446	677,504	740,262	901,143	1,006,898	1,088,890	1,207,820
Industry	329,911	380,486	465,818	549,842	687,782	776,507	855,957	963,648
Institutional funds	1,100,619	1,286,310	1,396,699	1,605,039	1,854,909	2,157,689	2,343,738	2,677,338
All other sources	484,606	569,953	606,552	686,573	725,337	821,143	930,143	1,066,397
Field								
Engineering, total	1,033,211	1,119,542	1,215,966	1,398,932	1,619,133	1,866,422	2,064,891	2,351,764
Aeronautical and astronautical	64,475	69,169	70,050	79,963	90,765	106,835	120,547	143,690
Chemical	83,614	90,939	95,851	109,540	125,907	140,096	153,000	183,256
Civil	113,908	124,250	137,526	150,746	176,104	189,593	223,320	245,013
Electrical	223,091	259,399	291,981	333,913	390,581	445,028	501,929	588,877
Mechanical	141,198	146,975	176,250	203,883	223,294	269,087	296,386	334,358
Other, n.e.c.	406,925	428,810	444,308	520,887	612,482	715,783	769,709	856,570
All sciences, total	6,173,627	6,635,877	7,267,531	8,145,606	9,150,443	10,131,547	11,224,154	12,391,422
Physical sciences	803,612	880,342	978,224	1,122,949	1,258,055	1,361,607	1,514,539	1,602,058
Astronomy	72,654	72,714	79,768	95,478	101,191	107,840	123,711	134,172
Chemistry	295,740	323,392	358,500	406,455	453,435	497,702	549,365	587,091
Physics	360,692	410,546	466,371	541,946	620,625	655,196	720,704	760,748
Other, n.e.c.	74,526	73,690	73,585	79,070	82,804	100,869	120,759	120,047
Environmental sciences	542,582	600,646	628,810	686,336	754,988	812,338	867,008	956,850
Atmospheric	84,135	95,862	99,594	105,108	117,481	125,327	130,291	152,940
Earth sciences	189,946	210,550	222,788	248,909	269,118	278,322	289,559	318,727
Oceanography	195,300	220,552	232,432	254,173	276,208	296,123	330,184	346,171
Other, n.e.c.	73,201	73,682	73,996	78,146	92,181	112,566	116,974	139,012
Mathematical sciences	92,847	102,868	119,160	124,366	147,713	173,579	195,253	209,829
Computer sciences	145,994	173,344	220,626	277,673	316,858	365,348	401,823	459,980
Life sciences	3,972,802	4,257,899	4,661,673	5,228,891	5,835,960	6,480,551	7,193,118	7,982,332
Agricultural sciences	845,952	899,830	930,307	975,726	1,064,603	1,098,004	1,156,309	1,251,412
Biological sciences	1,262,310	1,393,548	1,543,933	1,749,439	1,912,224	2,108,097	2,339,391	2,556,835
Medical sciences	1,743,847	1,834,943	2,039,253	2,325,329	2,622,657	3,013,040	3,385,006	3,831,931
Other, n.e.c.	120,693	129,578	148,180	178,397	236,476	261,410	312,412	342,154
Psychology	127,306	131,863	141,480	154,130	166,009	182,701	207,812	227,474
Social sciences	336,038	327,085	340,542	367,719	446,155	487,947	540,025	619,109
Economics	93,471	94,979	103,233	115,129	133,443	147,485	161,495	182,919
Political science	58,310	52,828	54,328	57,593	67,057	79,754	85,475	106,859
Sociology	72,583	70,925	65,142	70,360	92,038	92,435	107,551	113,903
Other, n.e.c.	111,674	108,353	117,839	124,637	153,617	168,273	185,504	215,428
Other sciences, n.e.c.	152,446	161,830	177,016	183,542	224,705	267,476	304,576	333,790

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-7. Federally financed R&D expenditures at doctorate-granting institutions, by science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Field	1982	1983	1984	1985	1986	1987	1988	1989
Total	4,689,451	4,905,224	5,336,924	5,962,822	6,600,405	7,235,732	8,070,317	8,827,983
Field								
Engineering, total	698,999	738,203	779,778	856,535	965,325	1,097,443	1,211,427	1,361,987
Aeronautical and astronautical	51,851	55,595	55,493	62,545	71,172	80,752	93,251	110,711
Chemical	50,022	52,485	54,788	58,488	67,481	69,406	77,339	91,760
Civil	58,203	62,215	71,092	77,445	87,149	88,927	102,358	102,881
Electrical	173,065	191,981	208,107	226,886	258,537	289,117	326,802	382,343
Mechanical	96,724	98,909	117,569	131,853	145,066	174,564	187,990	207,003
Other, n.e.c.	269,134	277,018	272,729	299,318	335,920	394,677	423,687	467,289
All sciences, total	3,990,452	4,167,021	4,557,146	5,106,287	5,635,080	6,138,289	6,858,890	7,465,996
Physical sciences	636,278	687,141	767,343	872,848	963,310	1,027,735	1,131,577	1,167,152
Astronomy	51,178	49,439	52,667	63,919	69,291	70,798	80,952	85,090
Chemistry	222,187	240,476	270,571	302,661	327,044	357,461	392,086	409,334
Physics	301,958	337,731	384,966	446,656	503,304	522,947	567,689	588,238
Other, n.e.c.	60,955	59,495	59,139	59,612	63,671	76,529	90,850	84,490
Environmental sciences	381,745	416,015	435,209	461,827	503,709	529,401	571,149	625,320
Atmospheric	66,975	74,738	80,018	83,606	95,164	102,991	106,059	119,140
Earth sciences	123,349	131,357	137,445	151,588	157,461	156,522	172,004	184,058
Oceanography	152,476	170,292	178,361	185,800	206,295	216,097	236,779	256,879
Other, n.e.c.	38,945	39,628	39,385	40,833	44,789	53,791	56,307	65,243
Mathematical sciences	69,743	74,301	90,089	94,359	111,590	129,164	146,863	153,488
Computer sciences	105,835	126,526	160,587	192,412	228,493	252,028	282,810	313,688
Life sciences	2,469,643	2,551,668	2,789,340	3,144,834	3,446,823	3,794,616	4,275,285	4,714,388
Agricultural sciences	241,343	243,754	249,466	274,957	272,340	280,631	302,635	321,796
Biological sciences	900,323	968,496	1,073,985	1,187,859	1,289,203	1,396,811	1,570,598	1,690,194
Medical sciences	1,250,908	1,260,910	1,373,183	1,575,369	1,740,837	1,961,229	2,214,480	2,501,254
Other, n.e.c.	77,069	78,508	92,706	106,649	144,443	155,945	187,572	201,144
Psychology	86,981	87,149	95,480	103,175	111,021	120,441	136,277	148,281
Social sciences	154,142	139,332	133,811	146,678	164,829	162,663	182,869	205,872
Economics	40,830	36,687	38,294	42,045	44,489	42,675	48,131	49,637
Political science	21,885	19,368	18,182	18,869	19,312	23,512	24,471	28,867
Sociology	43,401	40,028	35,447	37,624	47,201	42,700	47,680	51,489
Other, n.e.c.	48,026	43,249	41,888	48,140	53,827	53,776	62,587	75,879
Other sciences, n.e.c.	86,085	84,889	85,287	90,154	105,305	122,241	132,060	137,807

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-8. Non-Federal R&D expenditures at doctorate-granting institutions, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total non-Federal	2,517,387	2,850,195	3,146,573	3,581,716	4,169,171	4,762,237	5,218,728	5,915,203
Source of funds								
State and local governments	602,251	613,446	677,504	740,262	901,143	1,006,898	1,088,890	1,207,820
Industry	329,911	380,486	465,818	549,842	687,782	776,507	855,957	963,648
Institutional funds	1,100,619	1,286,310	1,396,699	1,605,039	1,854,909	2,157,689	2,343,738	2,677,338
All other sources	484,606	569,953	606,552	686,573	725,337	821,143	930,143	1,066,397
Field								
Engineering, total	334,212	381,339	436,188	542,397	653,808	768,979	853,464	989,777
Aeronautical and astronautical	12,624	13,574	14,557	17,418	19,593	26,083	27,296	32,979
Chemical	33,592	38,454	41,063	51,052	58,426	70,690	75,661	91,496
Civil	55,705	62,035	66,434	73,301	88,955	100,666	120,962	142,132
Electrical	50,026	67,418	83,874	107,027	132,044	155,911	175,127	206,534
Mechanical	44,474	48,066	58,681	72,030	78,228	94,523	108,396	127,355
Other, n.e.c.	137,791	151,792	171,579	221,569	276,562	321,106	346,022	389,281
All sciences, total	2,183,175	2,468,856	2,710,385	3,039,319	3,515,363	3,993,258	4,365,264	4,925,426
Physical sciences	167,334	193,201	210,881	250,101	294,745	333,872	382,962	434,906
Astronomy	21,476	23,275	27,101	31,559	31,900	37,042	42,759	49,082
Chemistry	73,553	82,916	87,929	103,794	126,391	140,241	157,279	177,757
Physics	58,734	72,815	81,405	95,290	117,321	132,249	153,015	172,510
Other, n.e.c.	13,571	14,195	14,446	19,458	19,133	24,340	29,909	35,557
Environmental sciences	160,837	184,631	193,601	224,509	251,279	282,937	295,859	331,530
Atmospheric	17,160	21,124	19,576	21,502	22,317	22,336	24,232	33,800
Earth sciences	66,597	79,193	85,343	97,321	111,657	121,800	117,555	134,669
Oceanography	42,824	50,260	54,071	68,373	69,913	80,026	93,405	89,292
Other, n.e.c.	34,256	34,054	34,611	37,313	47,392	58,775	60,667	73,769
Mathematical sciences	23,104	28,567	29,071	30,007	36,123	44,415	48,390	56,341
Computer sciences	40,159	46,818	60,039	85,261	88,365	113,320	119,013	146,292
Life sciences	1,503,159	1,706,231	1,872,333	2,084,057	2,389,137	2,685,935	2,917,833	3,267,944
Agricultural sciences	604,609	656,076	680,841	700,769	792,263	817,373	853,674	929,616
Biological sciences	361,987	425,052	469,948	561,580	623,021	711,286	768,793	866,641
Medical sciences	492,939	574,033	666,070	749,960	881,820	1,051,811	1,170,526	1,330,677
Other, n.e.c.	43,624	51,070	55,474	71,748	92,033	105,465	124,840	141,010
Psychology	40,325	44,714	46,000	50,955	54,988	62,260	71,535	79,193
Social sciences	181,896	187,753	206,731	221,041	281,326	325,284	357,156	413,237
Economics	52,641	58,292	64,939	73,084	88,954	104,810	113,364	133,282
Political science	36,425	33,460	36,146	38,724	47,745	56,242	61,004	77,992
Sociology	29,182	30,897	29,695	32,736	44,837	49,735	59,871	62,414
Other, n.e.c.	63,648	65,104	75,951	76,497	99,790	114,497	122,917	139,549
Other sciences, n.e.c.	66,361	76,941	91,729	93,388	119,400	145,235	172,516	195,983

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-9. R&D expenditures at public universities and colleges, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total	4,693,788	5,104,482	5,578,108	6,281,805	7,104,671	7,896,056	8,762,947	9,819,044
Source of funds								
Federal Government	2,723,085	2,860,953	3,110,055	3,480,535	3,829,381	4,167,802	4,699,140	5,182,605
State and local governments	566,466	572,656	632,141	685,583	832,616	927,309	995,811	1,113,199
Industry	207,741	243,032	285,025	341,432	439,130	493,400	545,238	624,591
Institutional funds	897,041	1,069,703	1,169,239	1,332,491	1,553,817	1,809,532	1,963,423	2,254,690
All other sources	299,455	358,138	381,598	441,764	449,727	498,013	559,335	643,959
Field								
Engineering, total	615,046	676,185	733,392	849,231	1,002,237	1,167,062	1,334,089	1,550,740
Aeronautical and astronautical	28,973	32,735	33,531	39,689	43,583	54,722	68,730	80,138
Chemical	53,904	58,569	59,404	69,111	77,457	84,215	93,902	112,298
Civil	89,646	99,523	107,366	115,198	138,184	145,957	171,820	197,397
Electrical	116,643	146,332	159,988	181,334	218,041	250,707	298,410	364,179
Mechanical	74,748	77,333	91,752	113,092	127,620	155,611	181,812	203,375
Other, n.e.c.	251,132	261,693	281,351	330,807	397,352	475,850	519,415	593,353
All sciences, total	4,078,742	4,428,297	4,844,716	5,432,574	6,102,434	6,728,994	7,428,858	8,268,304
Physical sciences	472,158	518,053	589,393	680,961	752,395	826,857	926,081	1,012,761
Astronomy	53,565	53,376	57,672	65,797	69,560	76,175	88,361	98,677
Chemistry	192,074	211,012	236,087	267,586	296,712	329,504	361,701	390,956
Physics	191,899	223,681	262,885	313,221	348,782	370,865	414,357	453,387
Other, n.e.c.	34,620	29,984	32,749	34,357	37,341	50,313	61,662	69,741
Environmental sciences	389,622	441,309	466,687	520,202	581,191	628,861	660,156	717,489
Atmospheric	66,358	77,181	78,934	88,174	100,230	108,487	106,860	121,994
Earth sciences	139,336	155,987	165,702	184,059	202,350	207,564	212,335	231,042
Oceanography	139,529	163,439	174,508	194,124	213,067	233,683	262,149	271,798
Other, n.e.c.	44,399	44,702	47,543	53,845	65,544	79,127	78,812	92,656
Mathematical sciences	52,157	58,181	66,016	67,389	83,033	99,351	108,184	120,279
Computer sciences	67,154	80,303	93,449	123,923	140,795	167,661	172,649	204,618
Life sciences	2,649,092	2,861,969	3,140,468	3,510,554	3,907,540	4,291,700	4,764,425	5,324,252
Agricultural sciences	839,506	895,676	923,526	964,130	1,051,378	1,080,519	1,138,179	1,241,261
Biological sciences	758,082	853,909	965,337	1,119,625	1,221,656	1,319,968	1,465,203	1,618,722
Medical sciences	997,853	1,041,546	1,165,850	1,318,938	1,479,816	1,719,713	1,962,799	2,243,955
Other, n.e.c.	53,651	70,838	85,755	107,861	154,690	171,500	198,244	220,314
Psychology	86,317	90,986	95,512	106,907	113,773	123,350	140,571	159,475
Social sciences	244,933	249,704	262,795	280,240	339,463	362,624	403,162	458,497
Economics	71,625	75,325	83,448	91,820	106,794	114,256	120,285	136,149
Political science	43,623	37,933	37,948	41,036	45,822	49,998	52,302	65,641
Sociology	52,289	54,445	46,820	49,347	60,727	58,574	72,683	78,012
Other, n.e.c.	77,396	82,001	94,579	98,037	126,120	139,796	157,892	178,696
Other sciences, n.e.c.	117,309	127,792	130,396	142,398	184,244	228,590	253,630	270,933

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-10. Federally financed R&D expenditures at public universities and colleges, by science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Field	1982	1983	1984	1985	1986	1987	1988	1989
Total	2,723,085	2,860,953	3,110,055	3,480,535	3,829,381	4,167,802	4,699,140	5,182,605
Field								
Engineering, total	358,546	382,083	395,397	434,854	499,069	570,483	672,077	768,259
Aeronautical and astronautical	21,474	23,921	22,867	27,489	31,109	37,112	50,812	58,510
Chemical	29,544	31,248	32,544	34,911	37,286	35,685	41,960	47,268
Civil	40,511	44,574	50,518	54,432	63,226	59,580	69,839	73,715
Electrical	80,110	96,535	100,432	105,991	123,668	140,149	172,694	215,641
Mechanical	45,341	46,127	52,682	63,382	71,300	88,035	100,674	106,419
Other, n.e.c.	141,566	139,678	136,354	148,649	172,480	209,922	236,098	266,706
All sciences, total	2,364,539	2,478,870	2,714,658	3,045,681	3,330,312	3,597,319	4,027,063	4,414,347
Physical sciences	349,504	374,817	427,130	488,169	523,136	561,836	622,902	665,899
Astronomy	38,950	36,783	38,416	43,647	45,323	46,780	53,198	58,061
Chemistry	138,058	149,837	168,353	189,541	201,778	221,839	243,835	256,415
Physics	148,190	168,412	199,165	237,208	255,634	264,665	290,562	313,638
Other, n.e.c.	24,306	19,785	21,196	17,773	20,401	28,552	35,307	37,785
Environmental sciences	251,673	282,495	299,289	321,597	357,377	372,012	397,473	421,992
Atmospheric	51,172	58,120	61,477	68,467	80,180	87,950	86,028	91,932
Earth sciences	81,680	87,970	92,172	97,689	100,735	96,261	107,025	110,713
Oceanography	101,765	119,601	127,007	132,640	149,771	158,458	175,511	188,541
Other, n.e.c.	17,056	16,804	18,633	22,801	26,691	29,343	28,909	30,806
Mathematical sciences	32,903	34,410	40,672	41,451	50,634	60,129	66,643	72,131
Computer sciences	37,170	46,097	53,852	65,712	82,502	91,750	94,218	103,438
Life sciences	1,473,558	1,524,374	1,670,948	1,887,348	2,041,150	2,221,736	2,521,697	2,792,440
Agricultural sciences	248,232	254,396	261,305	285,264	282,399	286,390	311,908	333,828
Biological sciences	510,930	557,001	618,763	688,839	741,965	791,822	892,051	971,991
Medical sciences	687,409	678,980	747,200	858,884	933,254	1,053,016	1,209,581	1,371,982
Other, n.e.c.	26,987	33,997	43,680	54,361	83,532	90,508	108,157	114,639
Psychology	57,670	57,509	61,530	67,378	71,501	75,810	86,693	98,334
Social sciences	98,624	93,479	94,461	100,810	114,856	108,835	127,739	145,625
Economics	27,824	27,801	32,348	33,893	35,094	32,329	35,558	37,611
Political science	13,486	11,788	11,446	12,383	12,174	12,378	12,554	16,289
Sociology	26,775	27,298	22,815	22,727	27,574	24,136	29,706	31,514
Other, n.e.c.	30,539	26,592	27,852	31,807	40,014	39,992	49,921	60,212
Other sciences, n.e.c.	63,437	65,689	66,776	73,216	89,156	105,211	109,698	114,488

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-11. Non-Federal R&D expenditures at public universities and colleges, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total non-Federal	1,970,703	2,243,529	2,468,053	2,801,270	3,275,290	3,728,254	4,063,807	4,636,439
Source of funds								
State and local governments	566,466	572,656	632,141	685,583	832,616	927,309	995,811	1,113,199
Industry	207,741	243,032	285,025	341,432	439,130	493,400	545,238	624,591
Institutional funds	897,041	1,069,703	1,169,289	1,332,491	1,553,817	1,809,532	1,963,423	2,254,690
All other sources	299,455	358,138	381,598	441,764	449,727	498,013	559,335	643,959
Field								
Engineering, total	256,500	294,102	337,995	414,377	503,168	596,579	662,012	782,481
Aeronautical and astronautical	7,499	8,814	10,664	12,200	12,474	17,610	17,918	21,628
Chemical	24,360	27,321	26,860	34,200	40,171	48,530	51,942	65,029
Civil	49,135	54,949	56,848	60,766	74,958	86,377	101,981	123,683
Electrical	36,533	49,797	59,556	75,343	94,373	110,558	125,716	148,538
Mechanical	29,407	31,206	39,070	49,710	56,320	67,576	81,138	96,956
Other, n.e.c.	109,566	122,015	144,997	182,158	224,872	265,928	283,317	326,647
All sciences, total	1,714,203	1,949,427	2,130,058	2,386,893	2,772,122	3,131,675	3,401,795	3,853,957
Physical sciences	122,654	143,236	162,263	192,792	229,259	265,021	303,179	346,862
Astronomy	14,615	16,593	19,256	22,150	24,237	29,395	35,163	40,615
Chemistry	54,016	61,175	67,734	78,045	94,934	107,665	117,866	134,541
Physics	43,709	55,269	63,720	76,013	93,148	106,200	123,795	139,750
Other, n.e.c.	10,314	10,199	11,553	16,584	16,940	21,761	26,355	31,957
Environmental sciences	137,949	158,814	167,398	198,605	223,814	256,849	262,683	295,498
Atmospheric	15,186	19,061	17,457	19,707	20,050	20,537	20,832	30,062
Earth sciences	57,656	68,017	73,530	86,370	101,615	111,303	105,310	120,329
Oceanography	37,764	43,838	47,501	61,484	63,296	75,225	86,638	83,257
Other, n.e.c.	27,343	27,898	28,910	31,044	38,853	49,784	49,903	61,850
Mathematical sciences	19,254	23,771	25,344	25,938	32,399	39,222	41,541	48,147
Computer sciences	29,984	34,206	39,597	58,211	58,293	75,911	78,431	101,179
Life sciences	1,175,534	1,337,595	1,469,520	1,623,206	1,866,390	2,069,964	2,242,728	2,531,812
Agricultural sciences	591,274	641,280	662,221	678,866	768,979	794,129	826,271	907,433
Biological sciences	247,152	296,908	346,574	430,786	479,691	528,146	573,152	646,732
Medical sciences	310,444	362,566	418,650	460,054	546,562	666,697	753,218	871,974
Other, n.e.c.	26,664	36,841	42,075	53,500	71,158	80,992	90,087	105,675
Psychology	28,647	33,477	33,982	39,529	42,272	47,540	53,878	61,141
Social sciences	146,309	156,225	168,334	179,430	224,607	253,789	275,423	312,872
Economics	43,801	47,524	51,100	57,927	71,700	81,927	84,727	98,538
Political science	30,137	26,145	26,502	28,653	33,648	37,620	39,748	49,352
Sociology	25,514	27,147	24,005	26,620	33,153	34,438	42,977	46,498
Other, n.e.c.	46,857	55,409	66,727	66,230	86,106	99,804	107,971	118,484
Other sciences, n.e.c.	53,872	62,103	63,620	69,182	95,088	123,379	143,932	156,445

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-12. R&D expenditures at private universities and colleges, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total	2,628,957	2,772,379	3,038,574	3,404,553	3,820,848	4,257,381	4,702,147	5,168,235
Source of funds								
Federal Government	2,039,977	2,121,976	2,313,395	2,575,553	2,872,777	3,164,699	3,481,629	3,789,860
State and local governments	49,970	53,085	58,294	68,273	83,717	97,139	111,124	125,910
Industry	129,330	145,059	189,706	217,770	260,000	295,809	324,675	358,983
Institutional funds	217,472	233,435	244,127	289,704	319,132	366,351	403,116	454,901
All other sources	192,208	218,824	233,052	253,253	285,222	333,383	381,603	438,580
Field								
Engineering, total	425,813	454,142	495,622	565,691	635,991	720,430	757,101	836,853
Aeronautical and astronautical	36,187	37,181	38,300	42,540	49,947	55,343	56,007	66,410
Chemical	29,904	32,605	36,691	40,671	48,740	56,434	60,267	72,789
Civil	26,154	26,942	32,243	37,943	40,561	46,377	55,012	52,155
Electrical	107,818	115,477	134,848	156,145	176,863	199,063	209,484	235,837
Mechanical	67,640	71,487	86,609	93,802	99,411	117,729	119,074	136,905
Other, n.e.c.	158,110	170,450	166,931	194,590	220,469	245,484	257,257	272,757
All sciences, total	2,203,144	2,318,237	2,542,952	2,838,862	3,184,857	3,536,951	3,945,046	4,331,382
Physical sciences	351,205	381,642	410,279	466,772	533,577	564,085	621,135	630,616
Astronomy	19,560	20,066	22,802	30,286	32,235	32,254	36,077	38,437
Chemistry	115,984	123,970	135,397	153,437	172,563	183,598	206,121	219,439
Physics	174,934	193,356	210,706	237,613	281,462	295,703	318,129	319,612
Other, n.e.c.	40,727	44,250	41,374	45,436	47,317	52,530	60,808	53,128
Environmental sciences	167,731	174,583	177,259	182,978	191,414	201,958	224,366	265,447
Atmospheric	20,310	21,455	23,076	19,522	19,827	19,858	26,808	37,090
Earth sciences	55,936	60,258	62,066	69,872	72,175	76,527	82,224	91,491
Oceanography	58,673	60,492	62,276	63,849	66,925	66,266	71,133	85,865
Other, n.e.c.	32,812	32,378	29,841	29,735	32,487	39,307	44,201	51,001
Mathematical sciences	44,302	48,259	57,245	60,642	68,871	77,520	90,649	93,969
Computer sciences	81,947	95,599	131,188	158,799	182,079	205,425	238,190	263,111
Life sciences	1,367,021	1,441,550	1,572,347	1,771,478	1,985,113	2,241,024	2,493,435	2,755,599
Agricultural sciences	25,175	25,769	31,039	35,544	38,571	40,419	43,662	48,261
Biological sciences	524,658	560,592	602,013	654,732	716,338	812,240	907,629	991,037
Medical sciences	747,762	794,329	874,766	1,008,330	1,145,525	1,296,154	1,425,115	1,592,661
Other, n.e.c.	69,426	60,860	64,529	72,872	84,679	92,211	117,029	123,640
Psychology	44,292	44,683	50,013	51,627	56,932	64,531	73,418	78,470
Social sciences	108,090	94,938	95,522	102,604	123,009	139,474	150,076	177,875
Economics	23,491	22,763	25,046	26,168	28,972	35,429	43,857	50,227
Political science	16,590	16,691	18,162	18,343	23,013	31,223	34,725	42,422
Sociology	26,516	22,657	23,499	25,987	35,881	38,053	37,897	40,542
Other, n.e.c.	41,493	32,827	28,815	32,106	35,143	34,769	33,597	44,683
Other sciences, n.e.c.	38,556	36,983	49,099	43,962	43,862	42,934	53,777	66,294

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-13. Federally financed R&D expenditures at private universities and colleges, by science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Field	1982	1983	1984	1985	1986	1987	1988	1989
Total	2,039,977	2,121,976	2,313,395	2,575,553	2,872,777	3,164,699	3,481,629	3,789,860
Field								
Engineering, total	345,264	362,380	391,381	430,517	476,790	538,084	552,949	611,405
Aeronautical and astronautical	31,026	32,299	34,154	37,086	42,561	46,565	46,219	54,599
Chemical	20,525	21,299	22,334	23,663	30,331	33,942	36,098	45,679
Civil	19,061	19,168	21,965	24,561	25,530	30,987	34,636	30,393
Electrical	93,670	96,718	108,947	122,496	136,683	150,804	156,273	173,059
Mechanical	52,033	53,933	65,975	70,206	76,059	89,022	89,919	103,292
Other, n.e.c.	128,949	138,963	138,006	152,505	165,626	186,764	189,804	204,383
All sciences, total	1,694,713	1,759,596	1,922,014	2,145,036	2,395,987	2,626,615	2,928,680	3,178,455
Physical sciences	299,985	324,652	354,529	401,759	459,014	485,697	530,751	529,256
Astronomy	12,660	13,133	14,765	20,746	24,363	24,409	28,273	29,950
Chemistry	92,107	97,505	110,695	122,998	136,249	145,914	161,182	167,296
Physics	158,360	174,088	190,876	215,913	254,657	266,706	285,162	284,026
Other, n.e.c.	36,858	39,926	38,193	42,102	43,745	48,668	56,134	47,984
Environmental sciences	139,028	143,101	145,691	151,015	157,583	168,757	185,313	222,699
Atmospheric	18,141	19,276	20,909	17,567	17,398	17,924	23,190	32,962
Earth sciences	45,172	47,033	47,802	56,452	59,436	63,295	67,490	75,356
Oceanography	51,678	51,941	53,942	55,026	58,292	59,244	62,997	77,382
Other, n.e.c.	24,037	24,851	23,038	21,970	22,457	28,294	31,636	36,999
Mathematical sciences	38,874	42,063	51,631	55,561	63,734	71,248	82,573	83,798
Computer sciences	69,768	81,582	108,959	129,868	149,984	165,342	195,052	214,444
Life sciences	1,028,471	1,061,625	1,155,819	1,296,553	1,446,606	1,608,031	1,796,482	1,980,400
Agricultural sciences	7,068	7,063	7,562	8,735	9,979	10,935	10,382	12,062
Biological sciences	405,107	425,968	470,604	515,832	563,857	619,857	697,879	747,867
Medical sciences	564,736	582,466	626,959	717,932	809,627	910,319	1,006,831	1,133,409
Other, n.e.c.	51,560	46,128	50,694	54,054	63,143	66,920	81,390	87,063
Psychology	31,359	32,147	36,587	38,811	42,872	48,412	54,194	57,926
Social sciences	62,597	53,325	48,498	52,831	57,898	59,348	60,594	65,548
Economics	13,764	10,982	10,044	9,799	10,354	11,094	13,610	12,866
Political science	8,958	8,312	7,603	7,409	8,117	11,750	12,564	12,834
Sociology	19,407	15,537	15,369	17,449	21,983	20,844	19,412	21,288
Other, n.e.c.	20,468	18,494	15,482	18,174	17,444	15,660	15,008	18,560
Other sciences, n.e.c.	24,631	21,101	20,300	18,638	18,296	19,780	23,721	24,384

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-14. Non-Federal R&D expenditures at private universities and colleges, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total non-Federal	588,980	650,403	725,179	829,000	948,071	1,092,682	1,220,518	1,378,374
Source of funds								
State and local governments	49,970	53,085	58,294	68,273	83,717	97,139	111,124	125,910
Industry	129,330	145,059	189,706	217,770	260,000	295,809	324,675	358,983
Institutional funds	217,472	233,435	244,127	289,704	319,132	366,351	403,116	454,901
All other sources	192,208	218,824	233,052	253,253	285,222	333,383	381,603	438,580
Field								
Engineering, total	80,549	91,762	104,241	135,174	159,201	182,346	204,152	225,448
Aeronautical and astronautical	5,161	4,882	4,146	5,454	7,386	8,778	9,788	11,811
Chemical	9,379	11,306	14,357	17,008	18,409	22,492	24,169	27,110
Civil	7,093	7,774	10,278	13,382	15,031	15,390	20,376	21,762
Electrical	14,148	18,759	25,901	33,649	40,180	48,259	53,211	62,778
Mechanical	15,607	17,554	20,634	23,596	23,352	28,707	29,155	33,613
Other, n.e.c.	29,161	31,487	28,925	42,085	54,843	58,720	67,453	68,374
All sciences, total	508,431	558,641	620,938	693,826	788,870	910,336	1,016,366	1,152,926
Physical sciences	51,220	56,990	55,750	65,013	74,563	78,388	90,384	101,360
Astronomy	6,900	6,933	8,037	9,540	7,872	7,845	7,804	8,487
Chemistry	23,877	26,465	24,702	30,439	36,314	37,684	44,939	52,143
Physics	16,574	19,268	19,830	21,700	26,805	28,997	32,967	35,586
Other, n.e.c.	3,869	4,324	3,181	3,334	3,572	3,862	4,674	5,144
Environmental sciences	28,703	31,482	31,568	31,963	33,831	33,201	39,053	42,748
Atmospheric	2,169	2,179	2,167	1,955	2,429	1,934	3,618	4,128
Earth sciences	10,764	13,225	14,264	13,420	12,739	13,232	14,734	16,135
Oceanography	6,995	8,551	8,334	8,823	8,633	7,022	8,136	8,483
Other, n.e.c.	8,775	7,527	6,803	7,765	10,030	11,013	12,565	14,002
Mathematical sciences	5,428	6,196	5,614	5,081	5,137	6,272	8,076	10,171
Computer sciences	12,179	14,017	22,229	28,931	32,095	40,083	43,138	48,667
Life sciences	338,550	379,925	416,528	474,925	538,507	632,993	696,953	775,199
Agricultural sciences	18,107	18,706	23,477	26,809	28,592	29,484	33,280	36,199
Biological sciences	119,551	134,624	131,409	138,900	152,481	192,383	209,750	243,170
Medical sciences	183,026	211,863	247,807	290,398	335,898	385,835	418,284	459,253
Other, n.e.c.	17,866	14,732	13,835	18,818	21,536	25,291	35,639	36,577
Psychology	12,933	12,536	13,426	12,816	14,060	16,119	19,224	20,544
Social sciences	45,493	41,613	47,024	49,773	65,111	80,126	89,482	112,327
Economics	9,727	11,781	15,002	16,369	18,618	24,335	30,247	37,361
Political science	7,632	8,379	10,559	10,934	14,896	19,473	22,161	29,588
Sociology	7,109	7,120	8,130	8,538	13,898	17,209	18,485	19,254
Other, n.e.c.	21,025	14,333	13,333	13,932	17,699	19,109	18,589	26,123
Other sciences, n.e.c.	13,925	15,882	28,799	25,324	25,566	23,154	30,056	41,910

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-15. R&D expenditures at doctorate-granting institutions, by source of funds, science/engineering field, and type of control: fiscal years 1982, 1988, and 1989

[Dollars in thousands]

Source and field	Total			Public			Private		
	1982	1988	1989	1982	1988	1989	1982	1988	1989
Total	7,206,838	13,289,045	14,743,186	4,604,507	8,630,476	9,629,453	2,602,331	4,658,569	5,113,733
Source of funds									
Federal Government	4,689,451	8,070,317	8,827,983	2,666,511	4,614,777	5,070,356	2,022,940	3,455,540	3,757,627
State and local governments	602,251	1,088,890	1,207,820	552,813	979,528	1,086,406	49,438	109,362	121,414
Industry	329,911	855,957	963,648	203,583	536,470	610,969	126,328	319,487	352,679
Institutional funds	1,100,619	2,343,738	2,677,338	885,783	1,945,942	2,230,670	214,836	397,796	446,668
All other sources	484,606	930,143	1,066,397	295,817	553,759	631,052	188,789	376,384	435,345
Field									
Engineering, total	1,033,211	2,064,891	2,351,764	610,380	1,315,077	1,518,864	422,831	749,814	832,900
Aeronautical and astronautical	64,475	120,547	143,690	28,401	64,652	77,330	36,074	55,895	66,360
Chemical	83,614	153,000	183,256	53,813	93,190	110,791	29,801	59,810	72,465
Civil	113,908	223,320	245,013	89,125	170,224	192,973	24,783	53,096	52,040
Electrical	223,091	501,929	588,877	115,779	295,226	354,045	107,312	206,703	234,832
Mechanical	141,198	296,386	334,358	73,893	178,691	199,808	67,305	117,695	134,550
Other, n.e.c.	406,925	769,709	856,570	249,369	513,094	583,917	157,556	256,615	272,653
All sciences, total	6,173,627	11,224,154	12,391,422	3,994,127	7,315,399	8,110,589	2,179,500	3,908,755	4,280,833
Physical sciences	803,612	1,514,539	1,602,058	459,139	903,985	984,709	344,473	610,554	617,349
Astronomy	72,654	123,711	134,172	53,327	88,081	95,735	19,327	35,630	38,437
Chemistry	295,740	549,365	587,091	183,377	348,569	375,774	112,363	200,796	211,317
Physics	360,692	720,704	760,748	188,492	407,168	445,544	172,200	313,536	315,204
Other, n.e.c.	74,526	120,759	120,047	33,943	60,167	67,656	40,583	60,592	52,391
Environmental sciences	542,582	867,008	956,850	378,564	646,306	697,707	164,018	220,702	259,143
Atmospheric	84,135	130,291	152,940	65,834	105,613	121,223	18,301	24,678	31,717
Earth sciences	189,946	289,559	318,727	134,528	208,629	228,021	55,418	80,930	90,706
Oceanography	195,300	330,184	346,171	137,550	259,120	260,306	57,750	71,064	85,865
Other, n.e.c.	73,201	116,974	139,012	40,652	72,944	88,157	32,549	44,030	50,855
Mathematical sciences	92,847	195,253	209,829	49,069	105,837	117,077	43,778	89,416	92,752
Computer sciences	145,994	401,823	459,980	65,088	165,233	198,221	80,906	236,590	261,759
Life sciences	3,972,802	7,193,118	7,982,332	2,611,579	4,712,952	5,248,376	1,361,223	2,480,166	2,733,956
Agricultural sciences	845,952	1,156,309	1,251,412	820,788	1,113,860	1,205,117	25,164	42,449	46,295
Biological sciences	1,262,310	2,339,391	2,556,835	741,907	1,441,025	1,583,164	520,403	898,366	973,671
Medical sciences	1,743,847	3,385,006	3,831,931	996,317	1,962,016	2,241,349	747,530	1,422,990	1,590,582
Other, n.e.c.	120,693	312,412	342,154	52,567	196,051	218,746	68,126	116,361	123,408
Psychology	127,306	207,812	227,474	84,077	136,925	152,087	43,229	70,887	75,387
Social sciences	336,038	540,025	619,109	232,571	392,622	443,507	103,467	147,403	175,602
Economics	93,471	161,495	182,919	70,479	118,032	132,994	22,992	43,463	49,925
Political science	58,310	85,475	106,859	42,026	51,135	64,676	16,284	34,340	42,183
Sociology	72,583	107,551	113,903	48,586	71,132	74,359	23,997	36,419	39,544
Other, n.e.c.	111,674	185,504	215,428	71,480	152,323	171,478	40,194	33,181	43,950
Other sciences, n.e.c.	152,446	304,576	333,790	114,040	251,539	268,905	38,406	53,037	64,885

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-16. Federally financed R&D expenditures at doctorate-granting institutions, by science/engineering field and type of control: fiscal years 1982, 1988, and 1989

[Dollars in thousands]

Field	Total			Public			Private		
	1982	1988	1989	1982	1988	1989	1982	1988	1989
Total	4,689,451	8,070,317	8,827,983	2,666,511	4,614,777	5,070,356	2,022,940	3,455,540	3,757,627
Field									
Engineering, total	698,999	1,211,427	1,361,987	355,363	661,327	751,828	343,636	550,100	610,159
Aeronautical and astronautical	51,851	93,251	110,711	20,915	47,131	56,157	30,936	46,120	54,554
Chemical	50,022	77,339	91,760	29,514	41,361	46,397	20,508	35,978	45,363
Civil	58,203	102,358	102,881	40,295	69,188	72,534	17,908	33,170	30,347
Electrical	173,065	326,802	382,343	79,508	171,119	209,624	93,557	155,683	172,719
Mechanical	96,724	187,990	207,003	44,740	98,512	104,171	51,984	89,478	102,832
Other, n.e.c.	269,134	423,687	467,289	140,391	234,016	262,945	128,743	189,671	204,344
All sciences, total	3,990,452	6,858,890	7,465,996	2,311,148	3,953,450	4,318,528	1,679,304	2,905,440	3,147,468
Physical sciences	636,278	1,131,577	1,167,152	340,515	607,433	646,400	295,763	524,144	520,752
Astronomy	51,178	80,952	85,090	38,712	53,077	55,140	12,466	27,875	29,950
Chemistry	222,187	392,086	409,334	131,880	233,798	246,669	90,307	158,288	162,665
Physics	301,958	567,689	588,238	145,794	285,839	307,987	156,164	281,850	280,251
Other, n.e.c.	60,955	90,850	84,490	24,129	34,719	36,604	36,826	56,131	47,886
Environmental sciences	381,745	571,149	625,320	245,012	388,467	408,201	136,733	182,682	217,119
Atmospheric	66,975	106,059	119,140	50,796	84,997	91,551	16,179	21,062	27,589
Earth sciences	123,349	172,004	184,058	78,419	105,017	108,909	44,930	66,987	75,149
Oceanography	152,476	236,779	256,879	100,828	173,782	179,497	51,648	62,997	77,382
Other, n.e.c.	38,945	56,307	65,243	14,969	24,671	28,244	23,976	31,636	36,999
Mathematical sciences	69,743	146,863	153,488	31,221	65,069	70,465	38,522	81,794	83,023
Computer sciences	105,835	282,810	313,688	36,481	88,398	100,342	69,354	194,412	213,346
Life sciences	2,469,643	4,275,285	4,714,388	1,445,637	2,487,548	2,745,854	1,024,006	1,787,737	1,968,534
Agricultural sciences	241,343	302,635	321,796	234,275	293,397	311,504	7,068	9,238	10,292
Biological sciences	900,323	1,570,598	1,690,194	498,608	878,420	950,560	401,715	692,178	739,634
Medical sciences	1,250,908	2,214,480	2,501,254	686,220	1,208,994	1,369,649	564,688	1,005,486	1,131,605
Other, n.e.c.	77,069	187,572	201,144	26,534	106,737	114,141	50,535	80,835	87,003
Psychology	86,981	136,277	148,281	56,420	84,007	92,954	30,561	52,270	55,327
Social sciences	154,142	182,869	205,872	94,364	123,860	140,552	59,778	59,009	65,320
Economics	40,830	48,131	49,637	27,309	34,662	36,841	13,521	13,469	12,796
Political science	21,885	24,471	28,867	13,030	12,166	16,037	8,855	12,305	12,830
Sociology	43,401	47,680	51,489	25,665	29,267	30,265	17,736	18,413	21,224
Other, n.e.c.	48,026	62,587	75,879	28,360	47,765	57,409	19,666	14,822	18,470
Other sciences, n.e.c.	86,085	132,060	137,807	61,498	108,668	113,760	24,587	23,392	24,047

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-17. Non-Federal R&D expenditures at doctorate-granting institutions, by source of funds, science/engineering field, and type of control: fiscal years 1982, 1988, and 1989

[Dollars in thousands]

Source and field	Total			Public			Private		
	1982	1988	1989	1982	1988	1989	1982	1988	1989
Total non-Federal	2,517,387	5,218,728	5,915,203	1,937,996	4,015,699	4,559,097	579,391	1,203,029	1,356,106
Source of funds									
State and local governments	602,251	1,088,890	1,207,820	552,813	979,528	1,086,406	49,438	109,362	121,414
Industry	329,911	855,957	963,648	203,583	536,470	610,969	126,328	319,487	352,679
Institutional funds	1,100,619	2,343,738	2,677,338	885,783	1,945,942	2,230,670	214,836	397,796	446,668
All other sources	484,606	930,143	1,066,397	295,817	553,759	631,052	188,789	376,384	435,345
Field									
Engineering, total	334,212	853,464	989,777	255,017	653,750	767,036	79,195	199,714	222,741
Aeronautical and astronautical	12,624	27,296	32,979	7,486	17,521	21,173	5,138	9,775	11,806
Chemical	33,592	75,661	91,496	24,299	51,829	64,394	9,293	23,832	27,102
Civil	55,705	120,962	142,132	48,830	101,036	120,439	6,875	19,926	21,693
Electrical	50,026	175,127	206,534	36,271	124,107	144,421	13,755	51,020	62,113
Mechanical	44,474	108,396	127,355	29,153	80,179	95,637	15,321	28,217	31,718
Other, n.e.c.	137,791	346,022	389,281	108,978	279,078	320,972	28,813	66,944	68,309
All sciences, total	2,183,175	4,365,264	4,925,426	1,682,979	3,361,949	3,792,061	500,196	1,003,315	1,133,365
Physical sciences	167,334	382,962	434,906	118,624	296,552	338,309	48,710	86,410	96,597
Astronomy	21,476	42,759	49,082	14,615	35,004	40,595	6,861	7,755	8,487
Chemistry	73,553	157,279	177,757	51,497	114,771	129,105	22,056	42,508	48,652
Physics	58,734	153,015	172,510	42,698	121,329	137,557	16,036	31,686	34,953
Other, n.e.c.	13,571	29,909	35,557	9,814	25,448	31,052	3,757	4,461	4,505
Environmental sciences	160,837	295,859	331,530	133,552	257,839	289,506	27,285	38,020	42,024
Atmospheric	17,160	24,232	33,800	15,038	20,616	29,672	2,122	3,616	4,128
Earth sciences	66,597	117,555	134,669	56,109	103,612	119,112	10,488	13,943	15,557
Oceanography	42,824	93,405	89,292	36,722	85,338	80,809	6,102	8,067	8,483
Other, n.e.c.	34,256	60,667	73,769	25,683	48,273	59,913	8,573	12,394	13,856
Mathematical sciences	23,104	48,390	56,341	17,848	40,768	46,612	5,256	7,622	9,729
Computer sciences	40,159	119,013	146,292	28,607	76,835	97,879	11,552	42,178	48,413
Life sciences	1,503,159	2,917,833	3,267,944	1,165,942	2,225,404	2,502,522	337,217	692,429	765,422
Agricultural sciences	604,609	853,674	929,616	586,513	820,463	893,613	18,096	33,211	36,003
Biological sciences	361,987	768,793	866,641	243,299	562,605	632,604	118,688	206,188	234,037
Medical sciences	492,939	1,170,526	1,330,677	310,097	753,022	871,700	182,842	417,504	458,977
Other, n.e.c.	43,624	124,840	141,010	26,033	89,314	104,605	17,591	35,526	36,405
Psychology	40,325	71,535	79,193	27,657	52,918	59,133	12,668	18,617	20,060
Social sciences	181,896	357,156	413,237	138,207	268,762	302,955	43,689	88,394	110,282
Economics	52,641	113,364	133,282	43,170	83,370	96,153	9,471	29,994	37,129
Political science	36,425	61,004	77,992	28,996	38,969	48,639	7,429	22,035	29,353
Sociology	29,182	59,871	62,414	22,921	41,865	44,094	6,261	18,006	18,320
Other, n.e.c.	63,648	122,917	139,549	43,120	104,558	114,069	20,528	18,359	25,480
Other sciences, n.e.c.	66,361	172,516	195,983	52,542	142,871	155,145	13,819	29,645	40,838

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-18. R&D expenditures at historically black colleges and universities, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total	48,423	52,528	61,074	62,725	71,832	73,759	93,889	124,764
Source of funds								
Federal Government	39,329	44,785	54,130	57,725	60,665	61,230	75,789	98,968
State and local governments	3,667	1,712	826	1,150	1,163	2,528	4,473	6,922
Industry	563	647	809	1,371	1,746	1,555	2,264	2,855
Institutional funds	3,688	3,744	3,661	1,579	6,722	7,182	9,651	14,868
All other sources	1,176	1,640	1,648	900	1,536	1,264	1,712	1,151
Field								
Engineering, total	2,278	2,607	3,978	5,077	6,898	6,400	8,015	11,224
Aeronautical and astronautical	432	310	266	250	263	371	410	629
Chemical	26	41	94	140	220	184	613	798
Civil	450	416	627	191	134	906	1,403	1,343
Electrical	840	1,189	1,689	1,119	1,467	2,123	2,027	2,982
Mechanical	386	294	592	1,002	1,619	1,912	2,238	2,783
Other, n.e.c.	144	357	710	2,375	3,195	904	1,324	2,689
All sciences, total	46,145	49,921	57,096	57,648	64,934	67,359	85,874	113,540
Physical sciences	6,516	7,377	10,718	11,952	13,783	14,089	14,928	17,361
Astronomy	74	88	68	16	26	12	27	0
Chemistry	4,748	5,029	7,577	7,693	9,051	7,875	9,560	10,020
Physics	1,076	1,881	2,888	3,970	4,473	6,074	5,340	6,749
Other, n.e.c.	618	379	185	273	233	128	1	592
Environmental sciences	1,089	1,016	693	1,173	1,104	1,229	1,373	1,457
Atmospheric	27	34	22	21	0	0	3	76
Earth sciences	261	400	191	350	286	303	336	542
Oceanography	111	62	133	305	381	208	397	27
Other, n.e.c.	690	520	347	497	437	718	637	812
Mathematical sciences	1,218	829	986	974	1,501	371	311	711
Computer sciences	402	225	295	493	629	957	1,294	2,377
Life sciences	32,160	35,160	37,903	38,472	41,587	43,901	57,756	80,848
Agricultural sciences	13,595	17,080	18,911	18,156	18,960	18,495	22,100	31,956
Biological sciences	10,754	11,484	13,579	12,534	12,593	15,838	25,248	35,206
Medical sciences	2,263	3,126	2,194	7,089	9,215	8,514	9,548	12,365
Other, n.e.c.	5,548	3,470	3,219	693	819	1,054	860	1,321
Psychology	416	173	58	221	352	628	500	1,272
Social sciences	2,776	4,368	5,879	3,822	5,017	4,591	8,784	8,349
Economics	631	1,907	3,920	1,310	634	290	842	842
Political science	729	823	662	934	994	728	1,196	1,234
Sociology	904	916	919	955	999	675	2,088	1,688
Other, n.e.c.	512	722	378	623	2,390	2,898	4,658	4,585
Other sciences, n.e.c.	1,568	773	564	541	961	1,593	928	1,165

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-19. Federally financed R&D expenditures at historically black colleges and universities, by science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Field	1982	1983	1984	1985	1986	1987	1988	1989
Total	39,329	44,785	54,130	57,725	60,665	61,230	75,789	98,968
Field								
Engineering, total	2,066	2,146	3,247	4,372	4,911	4,331	5,685	8,167
Aeronautical and astronautical	431	301	258	243	256	350	382	502
Chemical	26	30	84	140	158	123	554	628
Civil	387	393	577	184	130	585	818	925
Electrical	743	933	1,498	962	1,031	1,381	1,369	1,909
Mechanical	346	233	457	878	1,279	1,480	1,966	2,437
Other, n.e.c.	133	256	373	1,965	2,057	412	596	1,766
All sciences, total	37,263	42,639	50,883	53,353	55,754	56,899	70,104	90,801
Physical sciences	5,292	6,332	9,797	11,082	11,583	12,410	12,701	14,487
Astronomy	70	88	66	16	26	12	27	0
Chemistry	4,041	4,344	6,885	7,116	7,163	6,516	7,855	8,281
Physics	1,040	1,752	2,661	3,750	4,161	5,754	4,818	5,989
Other, n.e.c.	141	148	185	200	233	128	1	217
Environmental sciences	522	563	442	867	822	883	1,081	930
Atmospheric	18	26	17	19	0	0	3	76
Earth sciences	232	352	151	316	245	239	251	249
Oceanography	99	50	124	297	348	206	372	2
Other, n.e.c.	173	135	150	235	229	438	455	603
Mathematical sciences	342	284	412	941	1,012	329	255	454
Computer sciences	123	192	288	480	582	863	1,156	1,981
Life sciences	28,273	31,387	34,022	36,072	36,331	38,093	49,744	67,458
Agricultural sciences	12,618	16,106	17,534	16,959	17,739	16,731	20,991	28,348
Biological sciences	9,616	10,295	11,893	12,042	11,388	14,261	21,190	29,452
Medical sciences	1,908	2,466	1,804	6,409	6,431	6,065	6,708	9,100
Other, n.e.c.	4,131	2,520	2,791	662	773	1,036	855	558
Psychology	401	151	52	213	343	589	454	907
Social sciences	1,742	3,446	5,371	3,185	4,170	2,276	3,981	3,637
Economics	549	1,823	3,783	1,247	522	203	548	716
Political science	299	503	541	724	708	376	455	565
Sociology	669	642	890	790	788	188	214	456
Other, n.e.c.	225	478	157	424	2,152	1,509	2,764	1,900
Other sciences, n.e.c.	568	284	499	513	911	1,456	732	947

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-20. Non-Federal R&D expenditures at historically black colleges and universities, by source of funds and science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Source and field	1982	1983	1984	1985	1986	1987	1988	1989
Total non-Federal	9,094	7,743	6,944	5,000	11,167	12,529	18,100	25,796
Source of funds								
State and local governments	3,667	1,712	826	1,150	1,163	2,528	4,473	6,922
Industry	563	647	809	1,371	1,746	1,555	2,264	2,855
Institutional funds	3,688	3,744	3,661	1,579	6,722	7,182	9,651	14,868
All other sources	1,176	1,640	1,648	900	1,536	1,264	1,712	1,151
Field								
Engineering, total	212	461	731	705	1,987	2,069	2,330	3,057
Aeronautical and astronautical	1	9	8	7	7	21	28	127
Chemical	0	11	10	0	62	61	59	170
Civil	63	23	50	7	4	321	585	418
Electrical	97	256	191	157	436	742	658	1,073
Mechanical	40	61	135	124	340	432	272	346
Other, n.e.c.	11	101	337	410	1,138	492	728	923
All sciences, total	8,882	7,282	6,213	4,295	9,180	10,460	15,770	22,739
Physical sciences	1,224	1,045	921	870	2,200	1,679	2,227	2,874
Astronomy	4	0	2	0	0	0	0	0
Chemistry	707	685	692	577	1,888	1,359	1,705	1,739
Physics	36	129	227	220	312	320	522	760
Other, n.e.c.	477	231	0	73	0	0	0	375
Environmental sciences	567	453	251	306	282	346	292	527
Atmospheric	9	8	5	2	0	0	0	0
Earth sciences	29	48	40	34	41	64	85	293
Oceanography	12	12	9	8	33	2	25	25
Other, n.e.c.	517	385	197	262	208	280	182	209
Mathematical sciences	876	545	574	33	489	42	56	257
Computer sciences	279	33	7	13	47	94	138	396
Life sciences	3,887	3,773	3,881	2,400	5,256	5,808	8,012	13,390
Agricultural sciences	977	974	1,377	1,197	1,221	1,764	1,109	3,608
Biological sciences	1,138	1,189	1,686	492	1,205	1,577	4,058	5,754
Medical sciences	355	660	390	680	2,784	2,449	2,840	3,265
Other, n.e.c.	1,417	950	428	31	46	18	5	763
Psychology	15	22	6	8	9	39	46	365
Social sciences	1,034	922	508	637	847	2,315	4,803	4,712
Economics	82	84	137	63	112	87	294	126
Political science	430	320	121	210	286	352	741	669
Sociology	235	274	29	165	211	487	1,874	1,232
Other, n.e.c.	287	244	221	199	238	1,389	1,894	2,685
Other sciences, n.e.c.	1,000	489	65	28	50	137	196	218

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-21. R&D expenditures at universities and colleges, by geographic division and source: fiscal year 1989

[Dollars in millions]

Division	Total	Federal	Non-Federal
Total	14,987	8,972	6,015
New England	1,368	953	414
Middle Atlantic	2,405	1,474	931
East North Central	2,085	1,183	902
West North Central	976	487	489
South Atlantic	2,761	1,698	1,063
East South Central	608	328	279
West South Central	1,377	618	759
Mountain	874	514	361
Pacific	2,487	1,690	796
Outlying Areas	47	27	20

SOURCE: National Science Foundation, SRS

Table B-22 R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1982-89

[Dollars in thousands]

Division and State	1982	1983	1984	1985	1986	1987	1988	1989
Total	7,206,838	7,755,419	8,483,497	9,544,538	10,769,576	11,997,969	13,289,045	14,743,186
New England	729,165	784,016	851,745	948,319	1,039,272	1,115,314	1,234,706	1,356,621
Connecticut	151,338	164,350	176,843	194,928	212,815	230,790	254,958	284,410
Maine	18,599	19,454	17,107	20,621	19,315	16,952	17,341	19,974
Massachusetts	468,616	505,040	554,387	608,887	673,378	719,581	790,391	867,521
New Hampshire	27,687	30,301	31,865	39,680	44,330	50,928	57,658	62,172
Rhode Island	44,350	46,066	49,275	56,597	59,735	65,516	77,543	79,801
Vermont	18,575	18,805	22,268	27,606	29,699	31,547	36,815	42,743
Middle Atlantic	1,163,540	1,245,671	1,346,571	1,539,657	1,765,861	1,954,919	2,165,589	2,376,356
New Jersey	104,826	114,411	122,573	142,075	181,578	215,580	244,307	283,087
New York	715,924	763,894	822,091	938,944	1,037,116	1,127,404	1,246,170	1,332,139
Pennsylvania	342,790	367,366	401,907	458,638	547,167	611,935	675,112	761,130
East North Central	1,017,041	1,099,084	1,229,483	1,353,557	1,509,138	1,709,481	1,897,912	2,072,092
Illinois	284,980	312,037	357,285	392,793	438,991	498,221	546,300	604,466
Indiana	123,329	133,671	144,994	158,983	176,374	188,086	211,813	227,266
Michigan	226,172	249,850	283,643	301,235	341,775	396,420	438,420	486,270
Ohio	201,998	209,839	231,339	261,445	287,601	329,343	381,895	417,275
Wisconsin	180,562	193,687	212,222	239,101	264,397	297,411	319,484	336,815
West North Central	533,908	559,845	589,042	646,122	738,621	801,409	869,527	964,805
Iowa	110,710	119,646	119,272	132,251	146,312	157,539	181,481	209,327
Kansas	56,411	63,655	71,348	80,144	90,579	93,931	99,655	107,856
Minnesota	146,466	151,441	158,223	173,322	201,743	222,381	236,115	258,614
Missouri	129,450	135,668	150,414	160,985	185,935	205,597	232,148	255,009
Nebraska	53,018	53,753	53,801	60,612	71,239	74,654	83,357	93,916
North Dakota	26,433	25,269	27,459	29,649	31,840	35,912	24,444	27,634
South Dakota	11,420	10,413	8,525	9,159	10,973	11,395	12,327	12,449
South Atlantic	1,125,907	1,219,029	1,380,470	1,578,252	1,808,052	2,092,596	2,333,930	2,719,904
Delaware	17,875	19,080	21,343	23,605	28,798	31,681	32,023	37,194
District of Columbia	59,638	55,409	62,212	64,692	73,170	85,470	96,282	114,297
Florida	158,197	162,153	184,723	203,385	228,077	278,847	298,933	385,556
Georgia	175,691	194,293	217,197	231,068	290,291	329,937	371,360	417,287
Maryland	378,130	414,904	472,226	540,242	605,017	722,393	795,718	921,848
North Carolina	164,706	180,364	208,582	254,370	281,929	313,819	372,149	425,298
South Carolina	46,456	52,621	59,526	68,768	86,603	95,811	102,160	120,137
Virginia	103,397	120,567	134,480	169,738	189,876	207,934	234,887	258,919
West Virginia	21,817	19,638	20,181	22,384	24,291	26,704	30,418	39,368
East South Central	246,387	252,102	282,128	328,033	392,620	443,821	520,939	581,137
Alabama	67,899	70,051	86,542	104,137	133,410	152,925	180,809	207,200
Kentucky	46,201	49,498	52,647	53,790	68,552	78,008	91,948	83,998
Mississippi	48,067	47,534	49,371	52,618	59,223	57,622	63,647	75,175
Tennessee	84,220	85,019	93,568	117,488	131,435	155,266	184,535	214,764
West South Central	649,968	721,740	779,166	884,827	980,836	1,092,722	1,204,343	1,345,256
Arkansas	32,349	27,315	26,616	30,051	35,379	35,529	37,955	43,676
Louisiana	92,211	95,951	103,656	125,478	134,200	148,563	165,623	179,332
Oklahoma	71,173	87,072	91,386	96,407	89,020	99,363	113,931	113,279
Texas	454,235	511,402	557,508	632,891	722,237	809,267	886,834	1,008,969
Mountain	461,308	500,353	524,510	583,082	661,287	719,575	796,532	874,073
Arizona	101,075	112,660	118,818	136,835	160,678	181,263	199,178	223,531
Colorado	136,248	139,233	149,494	158,785	175,760	185,699	206,286	226,428
Idaho	17,865	17,751	19,626	20,861	23,729	24,779	30,789	33,191
Montana	18,921	22,952	24,198	24,327	26,438	29,425	32,069	32,450
Nevada	17,239	21,504	17,513	20,499	24,535	28,070	32,665	34,146
New Mexico	73,376	82,333	84,429	104,988	118,569	132,145	129,087	136,189
Utah	81,962	88,801	94,697	100,712	112,915	120,878	146,029	164,828
Wyoming	14,622	15,119	15,735	16,075	18,663	17,316	20,429	23,310
Pacific	1,256,362	1,347,583	1,471,899	1,651,495	1,838,812	2,030,817	2,226,572	2,411,001
Alaska	39,252	37,736	40,160	42,584	45,008	47,432	49,856	56,701
California	916,767	998,086	1,092,604	1,230,895	1,379,262	1,554,787	1,722,075	1,845,555
Hawaii	43,439	45,401	51,051	54,025	57,383	57,345	64,278	70,733
Oregon	89,532	95,959	102,833	114,151	124,195	135,326	148,309	161,127
Washington	167,372	170,401	185,251	209,840	232,964	235,927	242,054	276,885
Outlying Areas	23,252	25,996	28,483	31,194	35,077	37,315	38,995	41,941

SOURCE: National Science Foundation, SRS

Table B-23. Federally financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1982-89

[Dollars in thousands]

Division and State	1982	1983	1984	1985	1986	1987	1988	1989
Total	4,689,451	4,905,224	5,336,924	5,962,822	6,600,405	7,235,732	8,070,317	8,827,983
New England	558,112	596,973	643,579	702,600	754,047	808,738	884,476	944,086
Connecticut	113,124	123,925	133,433	139,748	145,583	155,717	173,912	187,212
Maine	8,149	8,313	8,444	10,653	8,584	7,787	7,048	8,288
Massachusetts	367,637	392,141	422,571	463,575	504,837	536,999	580,783	621,789
New Hampshire	19,568	20,276	21,824	26,445	29,929	34,633	39,077	41,816
Rhode Island	36,745	39,468	42,375	43,222	45,266	51,313	58,117	56,446
Vermont	12,889	12,850	14,932	18,957	19,848	22,289	25,539	28,535
Middle Atlantic	798,782	835,857	903,402	1,017,154	1,138,986	1,251,925	1,366,830	1,454,015
New Jersey	61,395	60,452	66,158	75,902	83,313	96,048	106,630	118,260
New York	498,593	525,599	564,892	638,759	713,836	769,965	832,785	866,762
Pennsylvania	238,794	249,806	272,352	302,493	341,837	385,912	427,415	468,993
East North Central	650,867	680,395	747,553	814,086	889,256	976,900	1,095,494	1,177,714
Illinois	190,412	204,722	223,090	240,113	258,845	293,929	315,809	338,082
Indiana	81,978	83,705	86,470	97,004	106,979	111,413	130,777	136,040
Michigan	131,389	145,751	165,661	175,168	188,844	207,709	242,766	263,448
Ohio	133,077	131,775	145,823	161,055	177,596	193,614	217,622	242,326
Wisconsin	114,011	114,442	126,509	140,746	156,992	170,235	188,520	197,818
West North Central	278,138	279,424	291,922	314,104	354,938	390,314	431,823	482,593
Iowa	56,940	61,524	62,252	64,133	69,932	76,915	87,855	103,360
Kansas	24,659	26,340	29,156	31,088	35,552	37,386	42,402	44,292
Minnesota	83,044	79,637	79,489	87,776	100,308	109,003	119,789	132,880
Missouri	81,047	81,146	86,759	92,544	102,592	113,146	124,552	139,677
Nebraska	18,683	17,133	19,702	24,671	28,703	33,350	35,097	36,823
North Dakota	9,904	9,424	10,526	11,628	12,729	15,385	16,285	19,395
South Dakota	3,861	4,220	4,038	2,264	5,122	5,129	5,843	6,166
South Atlantic	766,762	811,636	908,338	1,014,345	1,145,399	1,290,980	1,448,165	1,672,722
Delaware	9,540	9,583	10,811	10,626	12,578	13,662	13,708	17,083
District of Columbia	44,569	41,752	47,851	49,497	53,933	62,968	71,014	84,529
Florida	84,989	84,994	91,545	100,547	116,349	129,474	151,012	200,141
Georgia	87,812	101,467	111,312	116,570	136,997	151,025	180,102	204,673
Maryland	319,751	338,402	393,938	440,431	495,742	575,176	617,993	705,963
North Carolina	116,145	124,260	134,176	156,591	177,301	195,177	229,191	261,896
South Carolina	24,177	23,711	24,040	29,857	31,963	34,350	39,759	41,627
Virginia	68,851	77,255	83,668	97,874	107,005	116,137	129,450	139,471
West Virginia	10,928	10,212	10,997	12,352	13,531	13,011	15,936	17,339
East South Central	128,854	122,472	139,945	159,413	184,372	213,776	258,482	304,157
Alabama	43,605	41,277	50,098	60,558	69,993	85,382	104,259	114,892
Kentucky	18,959	18,080	19,317	19,241	24,963	30,778	33,162	32,963
Mississippi	16,103	14,606	17,815	19,053	21,878	22,492	25,357	32,123
Tennessee	50,187	48,509	52,715	60,561	67,538	75,124	95,704	124,179
West South Central	308,468	323,145	345,134	412,922	452,919	495,789	561,514	601,985
Arkansas	10,759	11,233	10,004	11,551	12,385	12,257	14,039	14,213
Louisiana	31,224	30,987	34,164	41,677	47,497	54,367	60,963	66,377
Oklahoma	25,405	25,204	25,965	30,420	24,290	25,880	31,391	33,067
Texas	241,080	255,721	275,001	329,274	368,747	403,285	455,121	488,328
Mountain	299,094	304,755	317,142	358,505	398,030	417,796	472,407	513,734
Arizona	52,395	55,452	57,183	65,463	76,615	80,955	94,630	105,367
Colorado	101,358	95,783	99,713	112,167	125,715	136,003	152,092	166,981
Idaho	12,625	11,726	12,987	13,963	9,328	8,988	11,196	12,585
Montana	8,507	8,157	7,363	9,163	9,082	11,299	13,635	11,552
Nevada	8,008	9,389	10,706	11,614	13,265	14,572	18,077	17,615
New Mexico	52,848	58,139	57,154	68,166	76,334	75,923	73,835	76,777
Utah	56,034	59,518	64,336	70,517	78,370	81,355	97,806	109,053
Wyoming	7,319	6,591	7,700	7,452	9,321	8,701	11,136	13,804
Pacific	888,443	937,272	1,025,517	1,153,973	1,264,346	1,370,484	1,528,784	1,652,859
Alaska	19,055	13,859	15,775	17,691	19,607	21,523	23,441	26,659
California	667,639	716,548	779,050	876,737	973,969	1,066,099	1,195,035	1,281,335
Hawaii	26,616	27,633	32,701	34,886	35,322	34,472	38,560	40,574
Oregon	53,114	58,157	65,298	68,262	73,360	81,932	90,126	99,141
Washington	122,019	121,075	132,693	156,397	162,088	166,458	181,622	205,150
Outlying Areas	11,931	13,295	14,392	15,720	18,112	19,030	22,342	24,118

SOURCE: National Science Foundation, SRS

Table B-24. R&D expenditures at doctorate-granting institutions, by geographic division, State, and source of funds: fiscal year 1989

[Dollars in thousands]

Division and State	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Total	14,743,186	8,827,983	1,207,820	963,648	2,677,338	1,066,397
New England	1,356,621	944,086	32,965	107,101	148,711	123,758
Connecticut	284,410	187,212	5,430	11,630	56,999	23,139
Maine	19,974	8,288	584	4,002	6,567	533
Massachusetts	867,521	621,789	18,529	78,727	58,681	89,795
New Hampshire	62,172	41,816	2,646	2,951	9,333	5,426
Rhode Island	79,801	56,446	3,276	6,305	11,646	2,128
Vermont	42,743	28,535	2,500	3,486	5,485	2,737
Middle Atlantic	2,376,356	1,454,015	146,507	178,936	364,426	232,472
New Jersey	283,087	118,260	45,150	16,595	82,798	20,284
New York	1,332,139	866,762	69,072	70,634	172,130	153,541
Pennsylvania	761,130	468,993	32,285	91,707	109,498	58,647
East North Central	2,072,092	1,177,71[illegible]	195,024	136,014	415,475	147,865
Illinois	604,466	338,082	35,789	38,990	150,694	40,911
Indiana	227,266	136,040	18,911	18,419	43,658	10,238
Michigan	486,270	263,448	35,922	36,136	115,751	35,013
Ohio	417,275	242,326	49,030	26,201	62,068	37,650
Wisconsin	336,815	197,818	55,372	16,268	43,304	24,053
West North Central	964,805	482,593	134,843	69,373	219,870	58,126
Iowa	209,327	103,360	24,839	14,711	60,796	5,621
Kansas	107,856	44,292	24,159	5,187	30,204	4,014
Minnesota	258,614	132,880	42,542	12,389	43,713	27,090
Missouri	255,009	139,677	14,509	25,151	59,615	16,057
Nebraska	93,916	36,823	22,971	9,098	20,905	4,119
North Dakota	27,634	19,395	918	2,521	3,797	1,003
South Dakota	12,449	6,166	4,905	316	840	222
South Atlantic	2,719,904	1,672,722	261,665	177,557	498,561	109,399
Delaware	37,194	17,083	2,603	4,073	11,125	2,310
District of Columbia	114,297	84,529	504	7,413	16,233	5,618
Florida	385,556	200,141	25,655	20,660	112,906	26,194
Georgia	417,287	204,673	40,141	35,335	125,003	12,135
Maryland	921,848	705,963	63,644	35,185	91,738	25,318
North Carolina	425,298	261,896	61,259	41,375	46,672	14,096
South Carolina	120,137	41,627	17,421	7,906	45,412	7,771
Virginia	258,919	139,471	49,183	21,647	34,391	14,227
West Virginia	39,368	17,339	1,255	3,963	15,081	1,730
East South Central	581,137	304,157	78,309	39,580	118,403	40,688
Alabama	207,200	114,892	18,339	16,242	41,271	16,456
Kentucky	83,998	32,963	7,113	7,516	30,593	5,813
Mississippi	75,175	32,123	20,486	5,334	9,659	7,573
Tennessee	214,764	124,179	32,371	10,488	36,880	10,846
West South Central	1,345,256	601,985	184,402	80,162	320,974	157,733
Arkansas	43,676	14,213	12,186	4,123	9,521	3,633
Louisiana	179,332	66,377	43,037	8,127	46,727	15,064
Oklahoma	113,279	33,067	5,062	5,667	60,063	9,420
Texas	1,008,969	488,328	124,117	62,245	204,663	129,616
Mountain	874,073	513,734	69,801	61,891	182,428	46,219
Arizona	223,531	105,367	7,949	12,500	85,773	11,942
Colorado	226,428	166,981	10,681	14,381	17,753	16,632
Idaho	33,191	12,585	8,112	4,199	8,148	147
Montana	32,450	11,552	7,919	3,242	9,534	203
Nevada	34,146	17,615	1,806	4,098	9,312	1,315
New Mexico	136,189	76,777	14,612	16,433	17,860	10,507
Utah	164,828	109,053	17,183	5,503	27,822	5,267
Wyoming	23,310	13,804	1,539	1,535	6,226	206
Pacific	2,411,001	1,652,859	97,242	112,812	399,893	148,195
Alaska	56,701	26,659	2,101	3,039	21,869	3,033
California	1,845,555	1,281,335	43,459	82,732	321,575	116,454
Hawaii	70,733	40,574	24,759	799	3,686	915
Oregon	161,127	99,141	20,860	4,849	16,637	19,640
Washington	276,885	205,150	6,063	21,393	36,126	8,153
Outlying Areas	41,941	24,118	7,062	222	8,597	1,942

SOURCE: National Science Foundation, SRS

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
United States, total	14,743,186	8,827,983	1,207,820	963,648	2,677,338	1,066,397
Public, total	9,629,453	5,070,356	1,086,406	610,969	2,230,670	631,052
Private, total	5,113,733	3,757,627	121,414	352,679	446,668	435,345
Alabama, total	207,200	114,892	18,339	16,242	41,271	16,456
Public, total	207,200	114,892	18,339	16,242	41,271	16,456
Auburn University	53,814	15,179	13,570	4,111	17,667	3,287
The University of Alabama	18,395	6,542	504	2,082	9,029	238
Univ Alabama Birmingham	98,302	68,204	2,120	6,602	8,445	12,931
Univ Alabama Huntsville	26,186	18,001	1,783	2,170	4,232	0
Univ of South Alabama	10,503	6,966	362E	1,277	1,898	0
Alaska, total	56,701	26,659	2,101	3,039	21,869	3,033
Public, total	56,701	26,659	2,101	3,039	21,869	3,033
Univ of Alaska Fairbanks	56,701	26,659	2,101	3,039	21,869	3,033
Arizona, total	223,531	105,367	7,949	12,500	85,773	11,942
Public, total	223,531	105,367	7,949	12,500	85,773	11,942
Arizona State University	44,044	22,151	642	2,382	17,457	1,412
Northern Arizona Univ	5,368	2,683	50	389	2,246	0
University of Arizona	174,119	80,533	7,257	9,729	66,070	10,530
Arkansas, total	43,676	14,213	12,186	4,123	9,521	3,633
Public, total	43,676	14,213	12,186	4,123	9,521	3,633
U of Arkansas Med Sci Cam	10,834	5,258	201	1,679	1,147	2,549
Univ of Ark Fayetteville	32,842	8,955	11,985	2,444	8,374	1,084
California, total	1,845,555	1,281,335	43,459	82,732	321,575	116,454
Public, total	1,283,696	829,540	40,024	48,324	271,680	94,128
San Diego State Univ	20,124	13,048	1,284	2,303	3,092	397
U of California System	0	0	0	0	0	0
US Naval Postgrad School	15,306	15,170	65	0	71	0
Univ of Cal Berkeley	209,967	124,371	7,154	8,480	59,984	9,978
Univ of Cal Davis	180,297	72,718	10,322	8,039	79,601	9,617
Univ of Cal Irvine	66,806	46,492	1,483	4,582	7,706	6,543
Univ of Cal Los Angeles	227,828	159,002	3,479	7,548	32,975	24,824
Univ of Cal Riverside	53,213	15,584	2,441	1,094	31,449	2,645
Univ of Cal San Diego	216,991	171,479	3,288	6,824	19,057	16,343
Univ of Cal San Francisco	219,446	159,906	8,770	6,226	24,269	20,275
Univ of Cal Santa Barbara	50,067	39,227	1,036	2,645	4,878	2,281
Univ of Cal Santa Cruz	23,651	12,543	702	583	8,598	1,225
Private, total	561,859	451,795	3,435	34,408	49,895	22,326
Biola University	13	0	0	0	13	0
Cal Sch Prof Psych-Berkly	0	0	0	0	0	0
Cal Sch Prof Psych-Fresno	1,922	1,566	0I	0I	356I	0I
Cal Sch Prof Psych-L A	1,551	1,383	0	0	168	0
Cal Sch Prof Psych-S D	62	0	0	0	62	0
California Inst of Tech	98,731	84,167	202	3,567	7,772	3,023
Chas R Drew U of Med & Sc	2,898	2,898	0	0	0	0
Claremont Graduate School	746	106	49	269	160	162
Col Osteo Med of Pacific	11	0	0	0	11	0
Fielding Institute	0	0	0	0	0	0
Fuller Theological Sem	60	3	0I	0I	57I	0I
Loma Linda University	5,248	2,294	41	1,964	748	201
Rand Grad Inst Pol Stdies	0	0	0	0	0	0
Santa Clara University	1,396	672	0	128	583	13
Stanford University	285,994	238,650	392	13,764	14,261	18,927
The Wright Institute	0	0	0	0	0	0
US International Univ	224	61	0	0	163	0
Univ of Southern Cal	162,013	119,005	2,751	14,716	25,541	0
University of the Pacific	990	990	0	0	0	0

See footnotes at end of table.

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989--Continued

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Colorado, total	226,428	166,981	10,681	14,381	17,753	16,632
Public, total	217,490	160,156	10,499	12,953	17,250	16,632
Colorado School of Mines	9,364	4,435	813	3,793	323	0
Colorado State University	64,351	46,572	7,992	2,432	4,708	2,647
Univ of Northern Colorado	81	4	2	0	44	31
Univ. of Colorado	143,694	109,145	1,692	6,728	12,175	13,954
Private, total	8,938	6,825	182	1,428	503	0
University of Denver	8,938	6,825	182	1,428	503	0
Connecticut, total	284,410	187,212	5,430	11,630	56,999	23,139
Public, total	109,328	46,184	4,249	4,996	46,208	7,691
University of Connecticut	109,328	46,184	4,249	4,996	46,208	7,691
Private, total	175,082	141,028	1,181	6,634	10,791	15,448
Wesleyan University	3,943	2,193	261	71	1,055	363
Yale University	171,139	138,835	920	6,563	9,736	15,085
Delaware, total	37,194	17,083	2,603	4,073	11,125	2,310
Public, total	37,194	17,083	2,603	4,073	11,125	2,310
University of Delaware	37,194	17,083	2,603	4,073	11,125	2,310
District of Columbia, total	114,297	84,529	504	7,413	16,233	5,618
Private, total	114,297	84,529	504	7,413	16,233	5,618
American University	3,765	3,480	23	110	94	58
Catholic Univ of America	6,554	6,077	0	477	0	0
George Washington Univ	30,284	25,220	136	1,100	1,649	2,179
Georgetown University	53,597	37,351	217	4,370	8,278	3,381
Howard University	20,097I	12,401I	128I	1,356I	6,212I	0I
Florida, total	385,556	200,141	25,655	20,660	112,906	26,194
Public, total	290,619	135,161	22,691	15,337	106,793	10,637
Florida A & M University	14,171	10,509	3,063	393	206	0
Florida Atlantic Univ	3,469	1,295	897	626	651	0
Florida State University	55,245	24,897	1,566	832	25,449	2,501
Univ of Central Florida	30,991	11,153	4,161	2,580	13,097	0
Univ of South Florida	60,973	26,576	2,824	327	29,246	2,000
University of Florida	125,770	60,731	10,180	10,579	38,144	6,136
Private, total	94,937	64,980	2,964	5,323	6,113	15,557
Florida Inst of Tech	3,531	898	1,352	567	502	212
Nova University	1,108	981	66	54	7	0
University of Miami	90,298	63,101	1,546	4,702	5,604	15,345
Georgia, total	417,287	204,673	40,141	35,335	125,003	12,135
Public, total	338,980	150,744	37,864	28,382	118,429	3,561
Georgia Institute of Tech	174,664	98,048	1,093	21,346	54,177	0
Georgia State University	7,000	2,507	445	349	2,876	823
Medical Col of Georgia	11,363	7,392	245	1,810	701	1,215
University of Georgia	145,953	42,797	36,081	4,877	60,675	1,523
Private, total	78,307	53,929	2,277	6,953	6,574	8,574
Clark Atlanta University	0E	0E	0E	0E	0E	0E
Emory University	64,713	46,497	2,242	6,169	1,904	7,901
Inst Paper Sci and Tech	6,231	1,382	26	591	3,559	673
Mercer University	3,043	1,812	9	193	1,029	0
Morehouse School of Med	4,320	4,238	0	0	82	0

See footnotes at end of table.

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989--Continued

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Hawaii, total	70,733	40,574	24,759	799	3,686	915
Public, total	70,733	40,574	24,759	799	3,686	915
Univ of Hawaii-Manoa	70,733	40,574	24,759	799	3,686	915
Idaho, total	33,191	12,585	8,112	4,199	8,148	147
Public, total	33,191	12,585	8,112	4,199	8,148	147
Idaho State University	1,312	378	316	411	60	147
University of Idaho	31,879	12,207	7,796	3,788	8,088	0
Illinois, total	604,466	338,082	35,789	38,990	150,694	40,911
Public, total	329,047	168,178	34,011	24,278	85,612	16,968
Illinois State University	2,559	973	1,120	0	57	409
Northern Illinois Univ	7,304	2,948	259	1,656	2,441	0
Southern Ill U-Carbondale	23,357	6,571	3,165	1,504	10,714	1,403
Univ of Ill Chicago	85,237	43,288	3,629	5,333	25,064	7,923
Univ of Ill Urbana	210,590	114,398	25,838	15,785	47,336	7,233
Private, total	275,419	169,904	1,778	14,712	65,082	23,943
Chicago Col of Osteo Med	1,651	314	0	523	814	0
De Paul University	905	772	0	4	118	11
Illinois Inst of Tech	6,864	3,947	178	2,089	650	0
Loyola Univ - Chicago	11,303	6,051	206	1,305	1,759	1,982
Northwestern University	118,991	57,510	831	5,289	45,008	10,353
Rush University	21,741	7,582	5	3,714	7,112	3,328
U Hlth Sci/Chcgo Med Sch	4,535	3,269	0	268	546	452
University of Chicago	109,429	90,459	558	1,520	9,075	7,817
Indiana, total	227,266	136,040	18,911	18,419	43,658	10,238
Public, total	207,881	122,831	18,770	14,215	41,827	10,238
Ball State University	798	178	108	139	373	0
Indiana State University	967	340	188	34	380	25
Indiana University	81,793	58,334	833	2,591	15,120	4,915
Purdue University	124,323	63,979	17,641	11,451	25,954	5,298
Private, total	19,385	13,209	141	4,204	1,831	0
University of Notre Dame	19,385	13,209	141	4,204	1,831	0
Iowa, total	209,327	103,360	24,839	14,711	60,796	5,621
Public, total	209,230	103,274	24,839	14,711	60,791	5,615
Iowa St U of Sci & Tech	103,174	28,895	23,718	4,408	42,644	3,509
Univ of Northern Iowa	156	108	0	2	45	1
University of Iowa	105,900	74,271	1,121	10,301	18,102	2,105
Private, total	97	86	0	0	5	6
Univ Osteo Med & Hlth Sci	97	86	0	0	5	6
Kansas, total	107,856	44,292	24,159	5,187	30,204	4,014
Public, total	107,856	44,292	24,159	5,187	30,204	4,014
Kans St U - Ag & App Sci	47,302	15,951	21,133	1,790	6,384	2,044
University of Kansas	57,111	26,420	2,674	2,809	23,640	1,568
Wichita State University	3,443	1,921	352	588	180	402
Kentucky, total	83,998	32,963	7,113	7,516	30,593	5,813
Public, total	83,998	32,963	7,113	7,516	30,593	5,813
University of Kentucky	69,532	27,010	6,840	5,819	25,318	4,545
University of Louisville	14,466	5,953	273	1,697	5,275	1,268

See footnotes at end of table.

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989--Continued

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Louisiana, total	179,332	66,377	43,037	8,127	46,727	15,064
Public, total	132,843	40,988	41,555	2,550	36,516	11,234
Louisiana State Univ	122,357	40,114	37,182	2,120	32,750	10,191
Louisiana Tech University	3,230	0	2,506I	392I	1I	331I
Northeast Louisiana Univ	439	56	222	28	123	10
Univ of Southwestern LA	6,817	818	1,645	10	3,642	702
Private, total	46,489	25,389	1,482	5,577	10,211	3,830
Tulane University	45,195	24,095	1,482	5,577	10,211	3,830
Xavier University of LA	1,294	1,294	0	0	0	0
Maine, total	19,974	8,288	584	4,002	6,567	533
Public, total	19,974	8,288	584	4,002	6,567	533
Univ of Maine Orono	19,974	8,288	584	4,002	6,567	533
Maryland, total	921,848	705,963	63,644	35,185	91,738	25,318
Public, total	273,453	115,779	61,308	24,172	65,227	6,967
U of MD Baltimore County	4,342	3,457	0	0	48	837
U of MD Center For EES	13,741	2,519	2,847	47	7,364	964
U of MD Eastern Shore	2,944	2,203	739	2	0	0
Unif Serv Univ of Hlth Sc	27,062	12,706	0	0	14,356	0
Univ of MD Balt Prof Sch	75,854	35,970	14,047	11,183	9,488	5,166
Univ of MD College Park	149,510	58,924	43,675I	12,940I	33,971I	0I
Private, total	648,395	590,184	2,336	11,013	26,511	18,351
Johns Hopkins Univ	648,395	590,184	2,336	11,013	26,511	18,351
Massachusetts, total	867,521	621,789	18,529	78,727	58,681	89,795
Public, total	121,886	62,479	11,837	14,329	27,546	5,695
Univ of Massachusetts	110,644	56,505	10,337	11,480	27,383	4,939
University of Lowell	11,242	5,974	1,500	2,849	163	756
Private, total	745,635	559,310	6,692	64,398	31,135	84,100
Boston College	6,152	5,824	7	129	0	192
Boston University	66,325	56,402	550	2,555	0	6,818
Brandeis University	30,596	19,080	333	0	5,205	5,978
Clark University	1,256	794	14	0	0	448
Harvard University	209,519	143,451	1,135I	10,461I	16,602I	37,870I
Mass Col Phar/Allied Hlth	41	0	0	41	0	0
Mass Inst of Technology	287,157	215,140	3,211	39,650	6,692	22,464
Northeastern University	13,302	10,201	214	953	268	1,666
Smith College	1,774	903	0	0	264	607
Tufts University	50,424	40,771	773	8,010E	847E	23E
Woods Hole Ocngrphic Inst	74,881	64,333	341	916	1,257	8,034
Worcester Poly Institute	4,208	2,411	114	1,683	0	0
Michigan, total	486,270	263,448	35,922	36,136	115,751	35,013
Public, total	484,788	263,369	35,842	34,999	115,674	34,904
Central Michigan Univ	866	179	440	45	202	0
Michigan State University	121,456	51,741	22,456	4,068	33,253	9,938
Michigan Tech University	15,186	5,210	2,838	3,584	3,554	0
Oakland University	4,673	2,767	0	751	1,111	44
University of Michigan	280,905	174,875	2,533	22,023	61,626	19,848
Wayne State University	59,521	28,167	7,042	3,850	15,507	4,955
Western Michigan Univ	2,181I	430I	533I	678I	421I	119I
Private, total	1,482	79	80	1,137	77	109
Andrews University	200	24	0	12	55	109
University of Detroit	1,282	55	80	1,125	22	0

See footnotes at end of table.

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989--Continued

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Minnesota, total	258,614	132,880	42,542	12,389	43,713	27,090
Public, total	258,614	132,880	42,542	12,389	43,713	27,090
University of Minnesota	258,614	132,880	42,542	12,389	43,713	27,090
Private, total	0	0	0	0	0	0
Mayo Grad School of Med	0	0	0	0	0	0
Mississippi, total	75,175	32,123	20,486	5,334	9,659	7,573
Public, total	75,175	32,123	20,486	5,334	9,659	7,573
Mississippi State Univ	53,670	17,694	20,334	3,886	5,416	6,340
Univ of Sthrn Mississippi	4,413	3,588	95	363	353	14
University of Mississippi	17,092	10,841	57	1,085	3,890	1,219
Missouri, total	255,009	139,677	14,509	25,151	59,615	16,057
Public, total	111,612	30,270	12,895	10,738	51,397	6,312
Univ of Missouri Columbia	74,055	22,312	11,210	6,434	29,864	4,235
Univ of Missouri Kan City	7,926	2,391	760	1,330	2,834	611
Univ of Missouri Rolla	17,692	3,459	582	2,385	10,085	1,181
Univ of Missouri St Louis	2,439	1,430	110	70	693	136
Univ of Missouri Sys Off	9,500	678	233	519	7,921	149
Private, total	143,397	109,407	1,614	14,413	8,218	9,745
Kirksville Col Osteo Med	727	306	12	0	4	405
St Louis University	14,251	12,272	70	913	100	896
Univ of Health Sciences	0	0	0	0	0	0
Washington University	128,419	96,829	1,532	13,500	8,114	8,444
Montana, total	32,450	11,552	7,919	3,242	9,534	203
Public, total	32,450	11,552	7,919	3,242	9,534	203
Montana State University	25,968	8,781	7,138	2,902	7,147	0
University of Montana	6,482	2,771	781	340	2,387	203
Nebraska, total	93,916	36,823	22,971	9,098	20,905	4,119
Public, total	85,982	34,437	22,804	3,869	20,753	4,119
U of Neb Med Ctr at Omaha	17,291	8,572	753	1,194	4,593	2,179
Univ of Nebraska at Omaha	410	62	45	0	229	74
Univ of Nebraska-Lincoln	68,281	25,803	22,006	2,675	15,931	1,866
Private, total	7,934	2,386	167	5,229	152	0
Creighton University	7,934	2,386	167	5,229	152	0
Nevada, total	34,146	17,615	1,806	4,098	9,312	1,315
Public, total	34,146	17,615	1,806	4,098	9,312	1,315
Desert Research Institute	16,005	8,968	933	3,079	2,463	562
Univ of Nevada - Reno	18,141	8,647	873	1,019	6,849	753
New Hampshire, total	62,172	41,816	2,646	2,951	9,333	5,426
Public, total	23,720	14,594	1,244	1,183	4,246	2,453
Univ of New Hampshire	23,720	14,594	1,244	1,183	4,246	2,453
Private, total	38,452	27,222	1,402	1,768	5,087	2,973
Dartmouth College	38,452	27,222	1,402	1,768	5,087	2,973

See footnotes at end of table.

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989--Continued

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
New Jersey, total	283,087	118,260	45,150	16,595	82,798	20,284
Public, total	190,427	64,961	42,960	9,795	60,057	12,654
N J Inst of Technology	11,402	1,082	7,170	1,125	586	1,439
Rutgers the St Univ of NJ	124,574	35,896	26,369	6,087	50,305	5,917
Univ of Med & Dent of N J	54,451	27,983	9,421	2,583	9,166	5,298
Private, total	92,660	53,299	2,190	6,800	22,741	7,630
Fairleigh Dickinson Univ	3,356	2,355	271	379	131	220
Princeton University	82,914	47,176	1,018	5,640	21,760	7,320
Seton Hall University	1,417I	1,236I	0I	181I	0I	0I
Stevens Institute of Tech	4,973	2,532	901	600	850	90
New Mexico, total	136,189	76,777	14,612	16,433	17,860	10,507
Public, total	136,189	76,777	14,612	16,433	17,860	10,507
N Mex Inst Mining & Tech	22,289	7,183	1,882	7,695	4,401	1,128
New Mexico State Univ	60,930	45,660	7,070	6,242	1,727	231
University of New Mexico	52,970	23,934	5,660	2,496	11,732	9,148
New York, total	1,332,139	866,762	69,072	70,634	172,130	153,541
Public, total	303,938	170,693	10,216	10,984	58,370	53,675
CUNY City College	11,724	9,005	496	667	0	1,556
CUNY Grad Sch & Univ Ctr	3,069	2,112	0	0	43	914
CUNY Hunter College	6,526	4,065	49	259	1,782	371
SUNY Col of Env Sci & For	17,221	1,883	661	1,716	12,289	672
SUNY Col of Optometry	494	292	0	24	83	95
SUNY Hlth Sci Ctr - Brkln	20,523	11,552	1,878	1,425	2,746	2,922
SUNY Hlth Sci Ctr - Syrcs	31,125	9,520	257	258	0	21,090
SUNY at Albany	24,240	15,171	286	657	4,933	3,193
SUNY at Binghamton	9,270	2,914	1,356	1,126	2,957	917
SUNY at Buffalo	100,291	64,453	2,699	1,759	16,827	14,553
SUNY at Stony Brook	79,455	49,726	2,534	3,093	16,710	7,392
Private, total	1,028,201	696,069	58,856	59,650	113,760	99,866
Adelphi University	592	280	199	0	113	0
Albany Medical College	9,827	7,259	2	1,222	1,283	61
Alfred University	3,874	449	1,043	1,475	866	41
CUNY Mt Sinai Sch of Med	56,856	37,233	957	3,732	5,767	9,167
Clarkson University	7,523	4,359	933	1,282	949	0
Columbia U Teachers Col	581	230	0	0	0	351
Columbia Univ Main Div	172,145	146,712	2,461	5,408	4,189	13,375
Cornell University	286,733	157,984	40,405	16,627	49,157	22,560
Fordham University	2,648	2,063	171	0	70	344
Hofstra University	366	256	47	63	0	0
Long Island University	313	191	40	1	19	62
New Sch For Soc Research	1,000	251	0	0	0	749
New York Inst Technology	3,998	0	0I	180I	3,818I	0I
New York Medical College	12,958	10,021	117	878	0	1,942
New York University	104,451	81,143	798	4,066	7,727	10,717
Polytechnic University	11,345	6,824	1,191	2,821	309	200
Rensselaer Polytech Inst	39,185	19,143	2,090	9,066	4,463	4,423
Rockefeller University	73,945	41,192	297	3,453	17,442	11,561
St John's University (NY)	632	361	35	236	0	0
Syracuse University	35,543	20,367	1,786	3,937	6,787	2,666
Union College (NY)	5,193	478	196	290	0	4,229
University of Rochester	123,997	101,049	6,088	4,913	2,779	9,168
Yeshiva University	74,496	58,224	0	0	8,022	8,250
North Carolina, total	425,298	261,896	61,259	41,375	46,672	14,096
Public, total	257,052	134,349	60,130	23,965	36,176	2,432
East Carolina University	5,241	2,690	967	1,584	0	0
N C State Univ at Raleigh	128,891	37,783	45,487	21,735	21,705	2,181
Univ of N C at Greensboro	823	596	21	67	43	96
Univ of NC at Chapel Hill	122,097	93,280	13,655	579	14,428	155

See footnotes at end of table.

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989--Continued

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
North Carolina, continued						
Private, total	168,246	127,547	1,129	17,410	10,496	11,664
Duke University	131,090	99,036	914	12,551	9,082	9,507
Wake Forest University	37,156	28,511	215	4,859	1,414	2,157
North Dakota, total	27,634	19,395	918	2,521	3,797	1,003
Public, total	27,634	19,395	918	2,521	3,797	1,003
North Dakota State Univ	10,116	5,291	824	1,257	2,058	686
University of N Dakota	17,518	14,104	94	1,264	1,739	317
Ohio, total	417,275	242,326	49,030	26,201	62,068	37,650
Public, total	299,123	147,044	47,354	19,122	55,490	30,113
Air Force Inst of Tech/Nr	1,567[1]	1,567[1]	0	0	0	0
Bowling Green State Univ	4,311	1,770	1,354	130	1,057	0
Cleveland State Univ	7,570	2,760	1,941	421	2,390	58
Kent State University	5,534	2,613	606	266	1,814	235
Med Col of Ohio at Toledo	6,809	5,855	255	144	0	555
Miami University (Ohio)	2,364	1,659	110	0	0	595
NE Ohio Univ Med School	1,616	811	145	101	426	133
Ohio State University	162,690	75,484	32,949	9,449	26,640	18,168
Ohio University	11,461	3,722	3,355	393	3,798	193
University of Akron	9,728	2,525	2,376	2,591	2,236	0
University of Cincinnati	69,831	40,598	2,910	4,160	14,019	8,144
University of Toledo	4,599	1,966	247	1,152	755	479
Wright State University	11,043	5,714	1,106	315	2,355	1,553
Private, total	118,152	95,282	1,676	7,079	6,578	7,537
Antioch University	0	0	0	0	0	0
Case Western Reserve Univ	86,168	68,632	1,251	2,915	5,867	7,503
Union Institute	0	0	0	0	0	0
University of Dayton	31,984	26,650	425	4,164	711	34
Oklahoma, total	113,279	33,067	5,062	5,667	60,063	9,420
Public, total	108,744	31,851	4,965	3,640	59,179	9,109
Okla Col Osteo Med & Surg	1,133	715	60	4	340	14
Oklahoma State University	53,655	14,116	1,853	1,645	34,613	1,428
University of Oklahoma	53,956	17,020	3,052	1,991	24,226	7,667
Private, total	4,535	1,216	97	2,027	884	311
Oral Roberts University	1,206	290	54	7	639	216
University of Tulsa	3,329	926	43	2,020	245	95
Oregon, total	161,127	99,141	20,860	4,849	16,637	19,640
Public, total	152,302	92,559	20,853	3,276	15,992	19,622
Oregon Hlth Sciences Univ	35,097	24,162	12	706	5,816	4,401
Oregon State University	91,355	49,112	20,373	2,285	5,554	14,031
Portland State University	3,374	1,999	139	122	648	466
University of Oregon	22,476	17,286	329	163	3,974	724
Private, total	8,825	6,582	7	1,573	645	18
Oregon Graduate Institute	8,825	6,582	7	1,573	645	18
Pennsylvania, total	761,130	468,993	32,285	91,707	109,498	58,647
Public, total	376,677	221,095	11,523	42,206	86,736	15,117
Pennsylvania State Univ	219,930	114,646	8,907	30,256	66,036	85
Temple University	45,482	25,232	1,426	2,544	12,552	3,728
University of Pittsburgh	111,265	81,217	1,190	9,406	8,148	11,304

See footnotes at end of table.

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989--Continued

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Pennsylvania, continued						
Private, total	384,453	247,898	20,762	49,501	22,762	43,530
Bryn Mawr College	895	536	69	70	96	124
Carnegie-Mellon Univ	101,635	65,079	9,277	18,976	1,844	6,459
Drexel University	17,983	6,371	1,307	4,202	6,103	0
Duquesne University	357	68	240	0	39	10
Hahnemann University	11,158	7,809	88	326	978	1,957
Lehigh University	26,004	9,925	2,996	7,596	4,200	1,287
Phila Col Osteopathic Med	512	302	0	0	207	3
Phila Col of Pharm & Sci	778	288	7	483	0	0
The Medical Col of Penna	20,542	11,514	3,976	0	0	5,052
Thomas Jefferson Univ	29,405	21,311	0	8,094	0	0
Univ of Pennsylvania	173,744	123,810	2,730	9,582	8,984	28,638
Villanova University	1,440	885	72	172	311	0
Rhode Island, total	79,801	56,446	3,276	6,305	11,646	2,128
Public, total	36,219	21,940	3,172	2,014	8,930	163
Univ of Rhode Island	36,219E	21,940	3,172	2,014E	8,930E	163E
Private, total	43,582	34,506	104	4,291	2,716	1,965
Brown University	43,564	34,506	104	4,291	2,698	1,965
Providence College	18	0	0	0	18	0
South Carolina, total	120,137	41,627	17,421	7,906	45,412	7,771
Public, total	120,137	41,627	17,421	7,906	45,412	7,771
Clemson University	56,699	12,484	16,245	3,849	22,486	1,635
Med Univ of So Carolina	23,017	11,547	0	2,089	6,305E	3,076
Univ of South Carolina	40,421	17,596	1,176	1,968	16,621	3,060
South Dakota, total	12,449	6,166	4,905	316	840	222
Public, total	12,449	6,166	4,905	316	840	222
S Dak Sch Mines & Tech	2,596	2,128	279	65	121	3
South Dakota State Univ	8,472	3,254	4,409	251	389	169
Univ of South Dakota	1,381	784	217	0	330	50
Tennessee, total	214,764	124,179	32,371	10,488	36,880	10,846
Public, total	142,982	61,631	31,795	7,699	34,684	7,173
East Tennessee State Univ	1,629	919	17	18	53	622
Memphis State University	9,892	2,299	2,779	209	4,298	307
Tenn Technological Univ	6,641	650	4,545	836	422	188
Univ. Of Tennessee System	124,820	57,763	24,454	6,636	29,911	6,056
Private, total	71,782	62,548	576	2,789	2,196	3,673
Meharry Medical College	6,564	6,397	0	30	115	22
Vanderbilt University	65,218	56,151	576	2,759	2,081	3,651
Texas, total	1,008,969	488,328	124,117	62,245	204,663	129,616
Public, total	836,215	392,415	117,071	52,700	186,846	87,183
East Texas State Univ	401	89	88	135	0	89
Lamar University	779	388	13	43	302	33
Sam Houston State Univ	219	84	29	12	70	24
Stephen F Austin St Univ	1,417	332	541	201	300	43
Texas A & M University	250,706	93,584	65,179	21,204	63,053	7,686
Texas Tech University	34,048	11,130	10,230	4,697	6,425	1,566
Texas Woman's University	969	325	413	141	90	0
U Tex Hlth Sci Ctr Houstn	46,860	29,500	5,668	3,266	1,694	6,732
U Tex Hlth Sci Ctr S Anto	41,852	29,324	652	5,535	2,749	3,592
U Tex Med Brnch Galveston	33,502	23,152	3,609	1,847	67	4,827
U of Houston	34,684	16,358	7,205	1,770	5,352	3,999
UT MD Anderson Cancer Ctr	85,903	28,992	0	0	35,200	21,711

See footnotes at end of table.

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989--Continued

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Texas, continued						
Public, continued						
UT SW Medical Ctr-Dallas	79,920	51,254	429	6,938	3,951	17,348
Univ of North Texas	9,121	2,813	3,678	1,004	213	1,413
Univ of Tex at Arlington	7,064	1,406	1,321	2,407	1,656	274
Univ of Texas at Austin	193,337	94,311	15,724	2,694	64,591	16,017
Univ of Texas at Dallas	11,265	6,812	1,018	756	986	1,693
Univ of Texas at El Paso	4,168	2,561	1,274	50	147	136
Private, total	172,754	95,913	7,046	9,545	17,817	42,433
Baylor Col of Dentistry	788	641	0	11	4	132
Baylor Col of Medicine	134,681	69,336	5,565	7,263	15,513	37,004
Baylor University	1,841	346	0	129	1,035	331
Rice University	21,563	16,340	788	1,203	0	3,232
Southern Methodist Univ	9,363	6,244	513	597	1,207	802
Texas Christian Univ	888	488	0	342	58	0
Texas Col of Osteo Med	3,630	2,518	180	0	0	932
Utah, total	164,828	109,053	17,183	5,503	27,822	5,267
Public, total	153,284	104,268	15,636	4,015	24,346	5,019
University of Utah	83,340	61,819	3,511	2,700	11,259	4,051
Utah State University	69,944	42,449	12,125	1,315	13,087	968
Private, total	11,544	4,785	1,547	1,488	3,476	248
Brigham Young University	11,544	4,785	1,547	1,488	3,476	248
Vermont, total	42,743	28,535	2,500	3,486	5,485	2,737
Public, total	42,743	28,535	2,500	3,486	5,485	2,737
U of VT & State Agr Coll	42,743	28,535	2,500	3,486	5,485	2,737
Virginia, total	258,919	139,471	49,183	21,647	34,391	14,227
Public, total	249,483	132,584	49,161	20,336	34,391	13,011
College of William & Mary	7,633	5,349	1,000	438	846	0
George Mason University	4,220	1,171	727	348	313	1,661
Old Dominion U Res Fdn	9,107	6,175	2,579	353	0	0
University of Virginia	81,281	51,214	7,006	5,768	10,196	7,097
VA Polytech Inst & St U	104,266	38,597	36,412	9,825	16,841	2,591
Virginia Commonwlth Univ	42,976	30,078	1,437	3,604	6,195	1,662
Private, total	9,436	6,887	22	1,311	0	1,216
Eastern VA Medical School	8,125	6,887	22	0	0	1,216
Institute of Textile Tech	1,311	0	0	1,311	0	0
Washington, total	276,885	205,150	6,063	21,393	36,126	8,153
Public, total	276,885	205,150	6,063	21,393	36,126	8,153
University of Washington	221,712	182,453	3,795	19,135	13,181	3,148
Washington State Univ	55,173	22,697	2,268	2,258	22,945	5,005
West Virginia, total	39,368	17,339	1,255	3,963	15,081	1,730
Public, total	39,368	17,339	1,255	3,963	15,081	1,730
Marshall University	1,679	1,647	0	10	22	0
W VA Schl Osteopathic Med	120	30	30	0	60	0
West Virginia University	37,569	15,662	1,225	3,953	14,999	1,730
Wisconsin, total	336,815	197,818	55,372	16,268	43,304	24,053
Public, total	299,410	174,899	54,293	11,663	39,167	19,388
Univ of Wis-Madison	285,982	169,452	49,054	11,035	37,916	18,525
Univ of Wis-Milwaukee	13,428	5,447	5,239	628	1,251	863

See footnotes at end of table.

Table B-25. R&D expenditures at doctorate-granting institutions, by State, type of control, and source of funds: fiscal year 1989--Continued

[Dollars in thousands]

State, type of control, and institution	Total	Federal Government	State and local governments	Industry	Institutional funds	All other sources
Wisconsin, continued						
Private, total	37,405	22,919	1,079	4,605	4,137	4,665
Marquette University	2,454	1,487	0	921	46	0
Medical College of Wis	34,951	21,432	1,079	3,684	4,091	4,665
Wyoming, total	23,310	13,804	1,539	1,535	6,226	206
Public, total	23,310	13,804	1,539	1,535	6,226	206
University of Wyoming	23,310	13,804	1,539	1,535	6,226	206
Puerto Rico, total	41,941	24,118	7,062	222	8,597	1,942
Public, total	39,888	22,204	6,974	222	8,555	1,933
Univ of P R-Mayaguez	29,343	14,114	6,965	222	6,249	1,793
Univ of P R-Med Sci Cmpus	6,528	5,235	0	0	1,231	62
Univ of P R-Rio Piedras	4,017	2,855	9	0	1,075	78
Private, total	2,053	1,914	88	0	42	9
Catholic Univ of P R	515	492	23	0	0	0
Ponce School of Medicine	856	782	65	0	0	9
U Ctrl Del Caribe Esc Med	682	640	0	0	42	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-26. R&D expenditures at doctorate-granting institutions, by geographic division, State, and science/engineering field: fiscal year 1989

[Dollars in thousands]

Division and State	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Total	14,743,186	2,351,764	1,602,058	956,850	669,809	7,982,332	227,474	619,109	333,790
New England	1,356,621	201,360	185,732	136,564	57,941	652,403	25,925	76,552	20,144
Connecticut	284,410	26,091	20,571	8,762	12,025	203,563	6,064	6,036	1,298
Maine	19,974	2,479	724	3,330	72	12,228	236	905	0
Massachusetts	867,521	151,913	148,548	96,510	33,719	338,812	16,372	66,099	15,548
New Hampshire	62,172	6,710	7,841	8,539	781	34,369	110	2,547	1,275
Rhode Island	79,801	13,298	7,028	19,055	11,111	25,650	1,762	926	971
Vermont	42,743	869	1,020	368	233	37,781	1,381	39	1,052
Middle Atlantic	2,376,356	385,046	233,589	93,395	147,441	1,334,261	47,927	103,015	31,682
New Jersey	283,087	48,686	38,098	14,101	17,696	124,814	10,953	19,934	8,805
New York	1,332,139	166,916	135,954	62,674	67,906	823,173	25,158	41,852	8,506
Pennsylvania	761,130	169,444	59,537	16,620	61,839	386,274	11,816	41,229	14,371
East North Central	2,072,092	337,657	241,439	79,817	60,374	1,097,448	38,404	117,875	99,078
Illinois	604,466	87,647	70,944	29,707	26,212	300,970	10,179	20,409	58,398
Indiana	227,266	37,258	46,988	2,858	8,330	112,358	4,747	9,965	4,762
Michigan	486,270	74,583	47,266	17,853	10,491	263,632	8,441	44,261	19,743
Ohio	417,275	100,042	45,479	6,073	6,549	217,797	5,811	21,035	14,489
Wisconsin	336,815	38,127	30,762	23,326	8,792	202,691	9,226	22,205	1,686
West North Central	964,805	111,386	64,332	28,070	27,810	673,795	13,146	29,222	17,044
Iowa	209,327	33,935	17,390	1,017	10,615	134,278	1,897	8,002	2,193
Kansas	107,856	10,864	9,867	7,666	1,432	65,418	1,475	2,127	9,007
Minnesota	258,614	27,709	14,423	7,198	6,669	187,347	6,283	8,455	530
Missouri	255,009	21,849	15,804	4,854	7,790	193,572	2,439	5,620	3,081
Nebraska	93,916	7,253	4,872	2,402	1,103	74,343	637	2,902	404
North Dakota	27,634	8,748	1,614	2,994	201	11,165	381	1,279	1,252
South Dakota	12,449	1,028	362	1,939	0	7,672	34	837	577
South Atlantic	2,719,904	576,616	278,764	167,637	200,744	1,304,359	33,605	115,326	42,853
Delaware	37,194	10,874	6,397	6,641	1,933	8,884	921	1,544	0
District of Columbia	114,297	10,082	14,083	661	6,210	74,145	1,035	8,009	72
Florida	385,556	58,113	34,159	42,005	8,821	190,116	8,874	14,990	28,478
Georgia	417,287	125,261	34,479	16,629	25,158	182,574	7,860	24,892	434
Maryland	921,848	252,039	133,969	64,270	121,297	306,887	6,441	24,453	12,492
North Carolina	425,298	39,840	20,380	14,460	14,838	311,445	2,581	21,584	170
South Carolina	120,137	17,267	9,228	8,028	8,023	64,540	2,199	10,222	630
Virginia	258,919	56,246	24,315	13,565	9,658	142,379	3,257	8,922	577
West Virginia	39,368	6,894	1,754	1,378	4,806	23,389	437	710	0
East South Central	581,137	107,161	39,919	10,596	14,773	373,010	7,551	15,876	12,251
Alabama	207,200	36,893	13,974	3,699	8,460	138,119	1,591	3,466	998
Kentucky	83,998	17,559	2,562	166	661	54,952	284	1,184	6,630
Mississippi	75,175	10,663	5,064	2,442	508	49,902	469	3,439	2,688
Tennessee	214,764	42,046	18,319	4,289	5,144	130,037	5,207	7,787	1,935
West South Central	1,345,256	180,042	122,915	109,491	37,433	778,054	8,336	52,888	56,097
Arkansas	43,676	5,818	3,708	59	1,024	30,430	473	1,721	443
Louisiana	179,332	20,015	10,789	14,536	7,281	116,147	1,464	6,818	2,282
Oklahoma	113,279	20,540	9,167	9,967	2,625	56,861	821	9,854	3,444
Texas	1,008,969	133,669	99,251	84,929	26,503	574,616	5,578	34,495	49,928
Mountain	874,073	185,082	126,842	104,224	26,706	369,963	12,119	32,604	16,533
Arizona	223,531	27,360	62,822	27,359	6,077	82,519	2,486	12,285	2,623
Colorado	226,428	36,933	30,659	32,553	5,673	104,316	7,279	8,010	1,005
Idaho	33,191	6,598	1,190	1,483	89	22,086	65	1,664	16
Montana	32,450	2,772	4,667	446	356	21,840	44	1,875	450
Nevada	34,146	2,125	931	17,409	7	10,607	28	2,704	335
New Mexico	136,189	61,148	7,326	7,423	9,165	42,911	1,039	1,805	5,372
Utah	164,828	44,938	17,020	14,847	4,475	73,332	994	3,543	5,679
Wyoming	23,310	3,208	2,227	2,704	864	12,352	184	718	1,053
Pacific	2,411,001	266,340	305,739	225,889	96,509	1,363,374	40,401	74,793	37,956
Alaska	56,701	4,674	12,878	21,766	197	15,080	0	2,106	0
California	1,845,555	231,969	241,238	135,942	83,205	1,060,562	32,463	53,443	6,733
Hawaii	70,733	1,344	17,090	23,005	172	20,602	341	2,764	5,415
Oregon	161,127	7,310	18,592	24,950	4,089	92,235	2,646	4,613	6,692
Washington	276,885	21,043	15,941	20,226	8,846	174,895	4,951	11,867	19,116
Outlying Areas	41,941	1,074	2,787	1,167	78	35,665	60	958	152

SOURCE: National Science Foundation, SRS

Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989

[Dollars in thousands]

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
United States, total	14,743,186	2,351,764	1,602,058	956,850	669,809	7,982,332	227,474	619,109	333,790
Public, total	9,629,453	1,518,864	984,709	697,707	315,298	5,248,376	152,087	443,507	268,905
Private, total	5,113,733	832,900	617,349	259,143	354,511	2,733,956	75,387	175,602	64,885
Alabama, total	207,200	36,893	13,974	3,699	8,460	138,119	1,591	3,466	998
Public, total	207,200	36,893	13,974	3,699	8,460	138,119	1,591	3,466	998
Auburn University	53,814	16,996	1,713	176	930	33,627	104	268	0
The University of Alabama	18,395	5,555	2,625	2,291	1,882	2,150	651	2,538	703
Univ Alabama Birmingham	98,302	4,133	351	0	1,194	91,942	623	59	0
Univ Alabama Huntsville	26,186	10,156	9,193	989	4,400	626	64	495	263
Univ of South Alabama	10,503	53	92	243	54	9,774	149	106	32
Alaska, total	56,701	4,674	12,878	21,766	197	15,080	0	2,106	0
Public, total	56,701	4,674	12,878	21,766	197	15,080	0	2,106	0
Univ of Alaska Fairbanks	56,701	4,674	12,878	21,766	197	15,080	0	2,106	0
Arizona, total	223,531	27,360	62,822	27,359	6,077	82,519	2,486	12,285	2,623
Public, total	223,531	27,360	62,822	27,359	6,077	82,519	2,486	12,285	2,623
Arizona State University	44,044	14,642	12,340	4,399	1,679	4,326	1,727	4,440	491
Northern Arizona Univ	5,368	135	514	348	57	3,113	458	451	292
University of Arizona	174,119	12,583	49,968	22,612	4,341	75,080	301	7,394	1,840
Arkansas, total	43,676	5,818	3,708	59	1,024	30,430	473	1,721	443
Public, total	43,676	5,818	3,708	59	1,024	30,430	473	1,721	443
U of Arkansas Med Sci Cam	10,834	0	0	0	0	10,834	0	0	0
Univ of Ark Fayetteville	32,842	5,818	3,708	59	1,024	19,596	473	1,721	443
California, total	1,845,555	231,969	241,238	135,942	83,205	1,060,562	32,463	53,443	6,733
Public, total	1,283,696	111,646	144,874	109,034	29,772	816,680	19,243	46,321	6,126
San Diego State Univ	20,124	3,729	1,233	694	1,811	7,931	813	1,399	2,514
U of California System	0	0	0	0	0	0	0	0	0
US Naval Postgrad School	15,306	4,419	2,322	3,029	2,454	0	51	3,031	0
Univ of Cal Berkeley	209,967	47,393	44,998	3,024	4,422	83,990	5,933	16,595	3,612
Univ of Cal Davis	180,297	7,124	7,346	739	713	162,623	163	1,589	0
Univ of Cal Irvine	66,806	4,244	11,425	113	3,027	44,441	0	3,556	0
Univ of Cal Los Angeles	227,828	22,975	21,764	11,272	6,631	144,933	6,694	13,559	0
Univ of Cal Riverside	53,213	0	4,146	1,462	682	45,750	76	1,097	0
Univ of Cal San Diego	216,991	6,373	24,540	75,600	7,074	99,224	2,410	1,770	0
Univ of Cal San Francisco	219,446	0	0	0	0	219,446	0	0	0
Univ of Cal Santa Barbara	50,067	15,237	14,866	9,305	2,360	2,421	2,936	2,942	0
Univ of Cal Santa Cruz	23,651	152	12,234	3,796	598	5,921	167	783	0
Private, total	561,859	120,323	96,364	26,908	53,433	243,882	13,220	7,122	607
Biola University	13	0	6	0	0	7	0	0	0
Cal Sch Prof Psych-Berkly	0	0	0	0	0	0	0	0	0
Cal Sch Prof Psych-Fresno	1,922	0	0	0	0	0	1,922	0	0
Cal Sch Prof Psych-L A	1,551	0	0	0	0	0	1,551	0	0
Cal Sch Prof Psych-S D	62	0	0	0	0	0	62	0	0
California Inst of Tech	98,731	16,670	39,377	14,391	4,081	23,012	0	593	607
Chas R Drew U of Med & Sc	2,898	0	0	0	0	2,281	0	617	0
Claremont Graduate School	746	0	0	0	354	0	199	193	0
Col Osteo Med of Pacific	11	0	0	0	0	11	0	0	0
Fielding Institute	0	0	0	0	0	0	0	0	0
Fuller Theological Sem	60	0	0	0	0	0	60	0	0
Loma Linda University	5,248	0	0	26	0	5,222	0	0	0
Rand Grad Inst Pol Stdies	0	0	0	0	0	0	0	0	0
Santa Clara University	1,396	646	117	0	200	296	23	114	0
Stanford University	285,994	78,311	50,733	5,186	15,652	129,352	4,081	2,679	0
The Wright Institute	0	0	0	0	0	0	0	0	0
US International Univ	224	0	0	0	0	0	224	0	0
Univ of Southern Cal	162,013	24,525	6,107	7,305	33,146	82,906	5,098	2,926	0
University of the Pacific	990	171	24	0	0	795	0	0	0

See footnotes at end of table.

Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

State and Institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Colorado, total	226,428	36,933	30,659	32,553	5,673	104,316	7,279	8,010	1,005
Public, total	217,490	32,535	28,131	32,553	5,667	103,889	6,202	7,508	1,005
Colorado School of Mines	9,364	3,069	2,160	2,229	802	0	0	167	937
Colorado State University	64,351	13,853	4,832	7,813	915	30,975	1,243	4,687	33
Univ of Northern Colorado	81	0	18	0	0	36	2	25	0
Univ. of Colorado	143,694	15,613	21,121	22,511	3,950	72,878	4,957	2,629	35
Private, total	8,938	4,398	2,528	0	6	427	1,077	502	0
University of Denver	8,938	4,398	2,528	0	6	427	1,077	502	0
Connecticut, total	284,410	26,091	20,571	8,762	12,025	203,563	6,064	6,036	1,298
Public, total	109,328	20,039	3,975	6,569	2,097	69,134	3,017	3,199	1,298
University of Connecticut	109,328	20,039	3,975	6,569	2,097	69,134	3,017	3,199	1,298
Private, total	175,082	6,052	16,596	2,193	9,928	134,429	3,047	2,837	0
Wesleyan University	3,943	0	1,537	40	584	1,651	95	36	0
Yale University	171,139	6,052	15,059	2,153	9,344	132,778	2,952	2,801	0
Delaware, total	37,194	10,874	6,397	6,641	1,933	8,884	921	1,544	0
Public, total	37,194	10,874	6,397	6,641	1,933	8,884	921	1,544	0
University of Delaware	37,194	10,874	6,397	6,641	1,933	8,884	921	1,544	0
District of Columbia, total	114,297	10,082	14,083	661	6,210	74,145	1,035	8,009	72
Private, total	114,297	10,082	14,083	661	6,210	74,145	1,035	8,009	72
American University	3,765	0	1,032	0	38	1,437	139	1,119	0
Catholic Univ of America	6,554	1,516	3,972	0	14	256	667	129	0
George Washington Univ	30,284	6,039	739	37	5,338	17,420	83	556	72
Georgetown University	53,597	0	4,201	460	776	43,272	64	4,824	0
Howard University	20,097I	2,527I	4,139I	164I	44I	11,760I	82I	1,381I	0I
Florida, total	385,556	58,113	34,159	42,005	8,821	190,116	8,874	14,990	28,478
Public, total	290,619	55,748	33,119	23,550	8,465	121,149	7,624	13,454	27,510
Florida A & M University	14,171	1,664	472	0	155	8,240	0	3,640	0
Florida Atlantic Univ	3,469	1,990	422	0	51	376	493	137	0
Florida State University	55,245	800	13,089	6,912	3,438	7,708	3,000	5,939	14,359
Univ of Central Florida	30,991	3,652	5,234	8,739	475	570	19	849	11,453
Univ of South Florida	60,973	20,480	2,249	3,955	946	31,204	1,438	701	0
University of Florida	125,770	27,162	11,653	3,944	3,400	73,051	2,674	2,188	1,698
Private, total	94,937	2,365	1,040	18,455	356	68,967	1,250	1,536	968
Florida Inst of Tech	3,531	569	65	1,357	41	997	0	0	502
Nova University	1,108	0	99	966	0	18	5	5	15E
University of Miami	90,298	1,796	876	16,132	315	67,952	1,245	1,531	451
Georgia, total	417,287	125,261	34,479	16,629	25,158	182,574	7,860	24,892	434
Public, total	338,980	119,588	28,951	16,189	24,591	118,704	7,564	22,959	434
Georgia Institute of Tech	174,664	116,109	20,753	9,918	18,568	2,238	2,891	4,105	82
Georgia State University	7,000	0	1,959	160	814	1,436	1,005	1,274	352
Medical Col of Georgia	11,363	0	0	0	0	11,363	0	0	0
University of Georgia	145,953	3,479	6,239	6,111	5,209	103,667	3,668	17,580	0
Private, total	78,307	5,673	5,528	440	567	63,870	296	1,933	0
Clark Atlanta University	0E	0E	0E	0E	0E	0E	0E	0E	0E
Emory University	64,713	0	4,038	11	291	58,197	254	1,922	0
Inst Paper Sci and Tech	6,231	3,286I	1,487I	385I	273I	800I	0I	0I	0I
Mercer University	3,043	2,387	3	44	3	553	42	11	0
Morehouse School of Med	4,320	0	0	0	0	4,320	0	0	0

See footnotes at end of table.

Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Hawaii, total	70,733	1,344	17,090	23,005	172	20,602	341	2,764	5,415
Public, total	70,733	1,344	17,090	23,005	172	20,602	341	2,764	5,415
Univ of Hawaii-Manoa	70,733	1,344	17,090	23,005	172	20,602	341	2,764	5,415
Idaho, total	33,191	6,598	1,190	1,483	89	22,086	65	1,664	16
Public, total	33,191	6,598	1,190	1,483	89	22,086	65	1,664	16
Idaho State University	1,312	121	252	47	89	688	0	115	0
University of Idaho	31,879	6,477	938	1,436	0	21,398	65	1,549	16
Illinois, total	604,466	87,647	70,944	29,707	26,212	300,970	10,179	20,409	58,398
Public, total	329,047	68,053	33,204	23,773	21,919	123,508	6,310	14,952	37,328
Illinois State University	2,559	0	421	0	43	489	33	1,573	0
Northern Illinois Univ	7,304	324	1,577	437	534	1,909	237	2,286	0
Southern Ill U-Carbondale	23,357	3,787	894	1,508	2,722	12,260	202	1,469	515
Univ of Ill Chicago	85,237	5,939	7,005	1,126	1,657	59,969	418	2,292	6,831
Univ of Ill Urbana	210,590	58,003	23,307	20,702	16,963	48,881	5,420	7,332	29,982
Private, total	275,419	19,594	37,740	5,934	4,293	177,462	3,869	5,457	21,070
Chicago Col of Osteo Med	1,651	0	0	0	0	1,651	0	0	0
De Paul University	905	0	171	0	74	127	533	0	0
Illinois Inst of Tech	6,864	4,866	991	632	164	192	19	0	0
Loyola Univ - Chicago	11,303	0	365	0	67	9,299	839	681	52
Northwestern University	118,991	14,728	11,884	1,308	1,445	66,589	792	1,227	21,018
Rush University	21,741	0	0	0	0	21,213	528	0	0
U Hlth Sci/Chcgo Med Sch	4,535	0	0	0	0	4,344	191	0	0
University of Chicago	109,429	0	24,329	3,994	2,543	74,047	967	3,549	0
Indiana, total	227,266	37,258	46,988	2,858	8,330	112,358	4,747	9,965	4,762
Public, total	207,881	33,223	35,947	2,833	7,869	109,464	4,530	9,870	4,145
Ball State University	798	36	152	31	57	370	1	142	9
Indiana State University	967	0	71	151	41	597	7	100	0
Indiana University	81,793	314	22,059	631	2,627	48,378	2,795	3,075	1,914
Purdue University	124,323	32,873	13,665	2,020	5,144	60,119	1,727	6,553	2,222
Private, total	19,385	4,035	11,041	25	461	2,894	217	95	617
University of Notre Dame	19,385	4,035	11,041	25	461	2,894	217	95	617
Iowa, total	209,327	33,935	17,390	1,017	10,615	134,278	1,897	8,002	2,193
Public, total	209,230	33,935	17,390	1,017	10,615	134,181	1,897	8,002	2,193
Iowa St U of Sci & Tech	103,174	25,225	4,276	600	8,603	56,107	617	5,564	2,182
Univ of Northern Iowa	156	0	0	0	26	74	11	34	11
University of Iowa	105,900	8,710	13,114	417	1,986	78,000	1,269	2,404	0
Private, total	97	0	0	0	0	97	0	0	0
Univ Osteo Med & Hlth Sci	97	0	0	0	0	97	0	0	0
Kansas, total	107,856	10,864	9,867	7,666	1,432	65,418	1,475	2,127	9,007
Public, total	107,856	10,864	9,867	7,666	1,432	65,418	1,475	2,127	9,007
Kans St U - Ag & App Sci	47,302	4,651	3,841	295	508	35,441	328	1,693	545
University of Kansas	57,111	3,728	5,710	7,324	621	29,894	1,086	286	8,462
Wichita State University	3,443	2,485	316	47	303	83	61	148	0
Kentucky, total	83,998	17,559	2,562	166	661	54,952	284	1,184	6,630
Public, total	83,998	17,559	2,562	166	661	54,952	284	1,184	6,630
University of Kentucky	69,532	11,336	1,886	147	640	49,192	156	936	5,239
University of Louisville	14,466	6,223I	676I	19I	21I	5,760I	128I	248I	1,391I

See footnotes at end of table.

Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Louisiana, total	179,332	20,015	10,789	14,536	7,281	116,147	1,464	6,818	2,282
Public, total	132,843	16,896	9,161	14,388	6,366	76,449	1,229	6,229	2,125
Louisiana State Univ	122,357	13,216	8,781	14,329	3,492	73,805	1,141	5,757	1,836
Louisiana Tech University	3,230	2,477I	1I	0I	0I	752I	0I	0I	0I
Northeast Louisiana Univ	439	0	64	10	4	235	0	126	0
Univ of Southwestern LA	6,817	1,203	315	49	2,870	1,657	88	346	289
Private, total	46,489	3,119	1,628	148	915	39,698	235	589	157
Tulane University	45,195	3,119	1,245	148	915	38,787	235	589	157
Xavier University of LA	1,294	0	383	0	0	911	0	0	0
Maine, total	19,974	2,479	724	3,330	72	12,228	236	905	0
Public, total	19,974	2,479	724	3,330	72	12,228	236	905	0
Univ of Maine Orono	19,974	2,479	724	3,330	72	12,228	236	905	0
Maryland, total	921,848	252,039	133,969	64,270	121,297	306,887	6,441	24,453	12,492
Public, total	273,453	42,291	48,126	20,300	16,505	126,788	5,248	14,195	0
U of MD Baltimore County	4,342	667	1,222	0	452	1,231	475	295	0
U of MD Center For EES	13,741	0	0	13,741	0	0	0	0	0
U of MD Eastern Shore	2,944	0	0	2	43	2,899	0	0	0
Unif Serv Univ of Hlth Sc	27,062	0	0	0	0	27,062	0	0	0
Univ of MD Balt Prof Sch	75,854	0	0	0	0	75,854	0	0	0
Univ of MD College Park	149,510	41,624	46,904	6,557	16,010	19,742	4,773	13,900	0
Private, total	648,395	209,748	85,843	43,970	104,792	180,099	1,193	10,258	12,492
Johns Hopkins Univ	648,395	209,748	85,843	43,970	104,792	180,099	1,193	10,258	12,492
Massachusetts, total	867,521	151,913	148,548	96,510	33,719	338,812	16,372	66,099	15,548
Public, total	121,886	12,489	15,033	7,393	10,544	68,050	3,120	3,753	1,504
Univ of Massachusetts	110,644	8,814	12,633	6,062	9,718	66,542	3,008	3,441	426
University of Lowell	11,242	3,675	2,400	1,331	826	1,508	112	312	1,078
Private, total	745,635	139,424	133,515	89,117	23,175	270,762	13,252	62,346	14,044
Boston College	6,152	0	2,288	583	2,500	473	81	227	0
Boston University	66,325	2,794	6,453	145	974	50,721	403	1,460	3,375
Brandeis University	30,596	0	3,665	0	948	13,244	1,283	11,456	0
Clark University	1,256	0	717	129	82	56	207	65	0
Harvard University	209,519	1,134	25,713	6,692	3,396	127,771	2,123	40,675	2,015
Mass Col Phar/Allied Hlth	41	0	0	0	0	41	0	0	0
Mass Inst of Technology	287,157	116,367	89,915	11,614	13,603	34,322	7,573	5,109	8,654
Northeastern University	13,302	4,555	3,227	0	871	3,435	618	596	0
Smith College	1,774	0	91	596	76	359	190	462	0
Tufts University	50,424	1,799	1,253	3,922	364	40,168	774	2,144	0
Woods Hole Ocngrphic Inst	74,881	9,445	0	65,436	0	0	0	0	0
Worcester Poly Institute	4,208	3,330	193	0	361	172	0	152	0
Michigan, total	486,270	74,583	47,266	17,853	10,491	263,632	8,441	44,261	19,743
Public, total	484,788	73,677	47,101	17,850	10,490	263,504	8,407	44,082	19,677
Central Michigan Univ	866	10	419	42	210	57	0	8	120
Michigan State University	121,456	11,494	21,121	1,159	760	73,509	1,739	5,105	6,569
Michigan Tech University	15,186	8,861	1,826	76	270	3,131	0	903	119
Oakland University	4,673	722	667	0	333	2,876	71	4	0
University of Michigan	280,905	46,866	15,747	16,142	8,137	143,184	5,601	36,860	8,368
Wayne State University	59,521	4,700	7,230	0	675	40,433	915	1,067	4,501
Western Michigan Univ	2,181I	1,024I	91I	431I	105I	314I	81I	135I	0I
Private, total	1,482	906	165	3	1	128	34	179	66
Andrews University	200	3	2	3	1	54	0	137	0
University of Detroit	1,282	903I	163I	0I	0I	74I	34I	42I	66I

See footnotes at end of table.

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Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Minnesota, total	258,614	27,709	14,423	7,198	6,669	187,347	6,283	8,455	530
Public, total	258,614	27,709	14,423	7,198	6,669	187,347	6,283	8,455	530
University of Minnesota	258,614	27,709	14,423	7,198	6,669	187,347	6,283	8,455	530
Private, total	0	0	0	0	0	0	0	0	0
Mayo Grad School of Med	0	0	0	0	0	0	0	0	0
Mississippi, total	75,175	10,663	5,064	2,442	508	49,902	469	3,439	2,688
Public, total	75,175	10,663	5,064	2,442	508	49,902	469	3,439	2,688
Mississippi State Univ	53,670	10,145	1,214	1,067	148	35,502	0	2,906	2,688
Univ of Sthrn Mississippi	4,413	56	2,844	465	350	496	178	24	0
University of Mississippi	17,092	462	1,006	910	10	13,904	291	509	0
Missouri, total	255,009	21,849	15,804	4,854	7,790	193,572	2,439	5,620	3,081
Public, total	111,612	18,930	9,329	2,310	3,458	67,589	1,685	5,230	3,081
Univ of Missouri Columbia	74,055	5,653	1,713	1,128	328	57,910	1,461	4,230	1,632
Univ of Missouri Kan City	7,926	2	676	53	1,502	4,920	1	465	307
Univ of Missouri Rolla	17,692	11,435	3,197	634	1,200	152	133	102	839
Univ of Missouri St Louis	2,439	0	960	0	83	685	90	433	188
Univ of Missouri Sys Off	9,500	1,840	2,783	495	345	3,922	0	0	115
Private, total	143,397	2,919	6,475	2,544	4,332	125,983	754	390	0
Kirksville Col Osteo Med	727	0	0	0	0	681	0	46	0
St Louis University	14,251	0	0	578	5	13,664	0	4	0
Univ of Health Sciences	0	0	0	0	0	0	0	0	0
Washington University	128,419	2,919	6,475	1,966	4,327	111,638	754	340	0
Montana, total	32,450	2,772	4,667	446	356	21,840	44	1,875	450
Public, total	32,450	2,772	4,667	446	356	21,840	44	1,875	450
Montana State University	25,968	2,772	4,305	294	196	17,204	37	1,160	0
University of Montana	6,482	0	362	152	160	4,636	7	715	450
Nebraska, total	93,916	7,253	4,872	2,402	1,103	74,343	637	2,902	404
Public, total	85,982	7,253	4,872	2,402	1,103	66,409	637	2,902	404
U of Neb Med Ctr at Omaha	17,291	0	0	0	0	17,291	0	0	0
Univ of Nebraska at Omaha	410	0	11	88	0	25	35	251	0
Univ of Nebraska-Lincoln	68,281	7,253	4,861	2,314	1,103	49,093	602	2,651	404
Private, total	7,934	0	0	0	0	7,934	0	0	0
Creighton University	7,934	0	0	0	0	7,934	0	0	0
Nevada, total	34,146	2,125	931	17,409	7	10,607	28	2,704	335
Public, total	34,146	2,125	931	17,409	7	10,607	28	2,704	335
Desert Research Institute	16,005	0	0	13,671	0	691	0	1,643	0
Univ of Nevada - Reno	18,141	2,125	931	3,738	7	9,916	28	1,061	335
New Hampshire, total	62,172	6,710	7,841	8,539	781	34,369	110	2,547	1,275
Public, total	23,720	1,929	5,176	7,391	414	5,790	34	2,084	902
Univ of New Hampshire	23,720	1,929	5,176	7,391	414	5,790	34	2,084	902
Private, total	38,452	4,781	2,665	1,148	367	28,579	76	463	373
Dartmouth College	38,452	4,781	2,665	1,148	367	28,579	76	463	373

See footnotes at end of table.

Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
New Jersey, total	283,087	48,686	38,098	14,101	17,696	124,814	10,953	19,934	8,805
Public, total	190,427	23,552	16,632	5,439	10,359	108,903	5,202	11,535	8,805
N J Inst of Technology	11,402	4,089	152	0	1,081	0	0	250	5,830
Rutgers the St Univ of NJ	124,574	19,463	16,480	5,439	9,278	54,452	5,202	11,285	2,975
Univ of Med & Dent of N J	54,451	0	0	0	0	54,451	0	0	0
Private, total	92,660	25,134	21,466	8,662	7,337	15,911	5,751	8,399	0
Fairleigh Dickinson Univ	3,356	0I	0I	2,274I	0I	594I	394I	94I	0I
Princeton University	82,914	20,957	20,191	6,388	7,336	15,272	4,528	8,242	0
Seton Hall University	1,417I	0I	479I	0I	1I	45I	829I	63I	0I
Stevens Institute of Tech	4,973	4,177	796	0	0	0	0	0	0
New Mexico, total	136,189	61,148	7,326	7,423	9,165	42,911	1,039	1,805	5,372
Public, total	136,189	61,148	7,326	7,423	9,165	42,911	1,039	1,805	5,372
N Mex Inst Mining & Tech	22,289	16,325	1,528	4,114	252	70	0	0	0
New Mexico State Univ	60,930	30,060	2,292	1,788	8,420	17,488	257	321	304
University of New Mexico	52,970	14,763	3,506	1,521	493	25,353	782	1,484	5,068
New York, total	1,332,139	166,916	135,954	62,674	67,906	823,173	25,158	41,852	8,506
Public, total	303,938	31,586	38,032	24,666	8,330	174,540	10,308	12,852	3,624
CUNY City College	11,724	2,562	5,559	286	295	2,479	150	114	279
CUNY Grad Sch & Univ Ctr	3,069	0	0	0	427	1,290	1,238	102	12
CUNY Hunter College	6,526	0	2,359	75	140	2,516	997	382	57
SUNY Col of Env Sci & For	17,221	5,465	1,417	2,234	253	7,329	0	523	0
SUNY Col of Optometry	494	0	0	0	0	494	0	0	0
SUNY Hlth Sci Ctr - Brkln	20,523	0	0	0	0	20,523	0	0	0
SUNY Hlth Sci Ctr - Syrcs	31,125	0	0	0	0	31,125	0	0	0
SUNY at Albany	24,240	0	2,440	11,089	772	2,886	2,894	3,966	193
SUNY at Binghamton	9,270	486	1,620	604	623	1,901	1,714	2,322	0
SUNY at Buffalo	100,291	19,630	6,413	357	2,608	65,589	2,314	2,849	531
SUNY at Stony Brook	79,455	3,443	18,224	10,021	3,212	38,408	1,001	2,594	2,552
Private, total	1,028,201	135,330	97,922	38,008	59,576	648,633	14,850	29,000	4,882
Adelphi University	592	0	457	0	0	78	57	0	0
Albany Medical College	9,827	0	0	0	0	9,827	0	0	0
Alfred University	3,874	3,874	0	0	0	0	0	0	0
CUNY Mt Sinai Sch of Med	56,856	0	0	0	0	56,856	0	0	0
Clarkson University	7,523	4,415	1,409	0	456	404	9	0	830
Columbia U Teachers Col	581	0	0	0	18	0	382	181	0
Columbia Univ Main Div	172,145	15,429	13,718	29,982	5,046	100,063	1,338	6,569	0
Cornell University	286,733	38,648	43,228	5,504	21,519	163,640	2,875	10,414	905
Fordham University	2,648	268	18	0	366	905	44	1,047	0
Hofstra University	366	104	11	0	54	197	0	0	0
Long Island University	313	0	55	42	28	64	83	41	0
New Sch For Soc Research	1,000	0	0	0	0	11	253	736	0
New York Inst Technology	3,998	769I	255I	10I	2,239I	725I	0I	0I	0I
New York Medical College	12,958	0	0	0	0	12,958	0	0	0
New York University	104,451	0	3,056	177	13,003	76,883	3,703	5,334	2,295
Polytechnic University	11,345	8,013	3,069	0	191	0	0	72	0
Rensselaer Polytech Inst	39,185	27,106	5,826	988	3,109	1,131	124	258	643
Rockefeller University	73,945	0	9,518	0	1,056	63,371	0	0	0
St John's University (NY)	632	0	10	0	0	568	54	0	0
Syracuse University	35,543	11,575	5,039	784	9,045	5,500	805	2,703	92
Union College (NY)	5,193	1,361	946	158	593	683	356	1,096	0
University of Rochester	123,997	23,768	11,307	363	2,853	80,283	4,767	539	117
Yeshiva University	74,496	0	0	0	0	74,486	0	10	0
North Carolina, total	425,298	39,840	20,380	14,460	14,838	311,445	2,581	21,584	170
Public, total	257,052	34,433	12,148	11,144	12,569	172,265	1,219	13,274	0
East Carolina University	5,241	0	131	971	0	3,606	0	533	0
N C State Univ at Raleigh	128,891	34,421	5,488	5,473	4,514	76,476	142	2,377	0
Univ of N C at Greensboro	823	12	21	0	0	473	269	48	0
Univ of NC at Chapel Hill	122,097	0	6,508	4,700	8,055	91,710	808	10,316	0

See footnotes at end of table.

Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

State and Institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
North Carolina, continued									
Private, total	168,246	5,407	8,232	3,316	2,269	139,180	1,362	8,310	170
Duke University	131,090	5,407	7,864	3,316	2,221	102,646	1,326	8,310	0
Wake Forest University	37,156	0	368	0	48	36,534	36	0	170
North Dakota, total	27,634	8,748	1,614	2,994	201	11,165	381	1,279	1,252
Public, total	27,634	8,748	1,614	2,994	201	11,165	381	1,279	1,252
North Dakota State Univ	10,116	538	1,268	71	201	6,833	353	547	305
University of N Dakota	17,518	8,210	346	2,923	0	4,332	28	732	947
Ohio, total	417,275	100,042	45,479	6,073	6,549	217,797	5,811	21,035	14,489
Public, total	299,123	61,092	31,371	5,696	5,525	162,763	2,550	18,298	11,828
Air Force Inst of Tech/Nr	1,567I	1,044I	46I	0I	477I	0I	0I	0I	0I
Bowling Green State Univ	4,311	0	999	128	236	1,283	564	413	688
Cleveland State Univ	7,570	3,613	637	10	34	178	26	3,072	0
Kent State University	5,534	0	2,656	446	637	962	130	298	405
Med Col of Ohio at Toledo	6,809	0	0	0	0	6,809	0	0	0
Miami University (Ohio)	2,364	60I	680I	102I	4I	615I	232I	306I	365I
NE Ohio Univ Med School	1,616	0	0	0	0	1,616E	0	0	0
Ohio State University	162,690	29,821	12,222	4,491	2,207	91,583	338	13,197	8,831
Ohio University	11,461	4,611	1,244	167	7	4,998	268	166	0
University of Akron	9,728	4,331	4,257	69	347	212	239	273	0
University of Cincinnati	69,831	12,911	5,643	148	563	48,512	280	244	1,530
University of Toledo	4,599	2,422	724	15	87	1,029	250	63	9
Wright State University	11,043	2,279	2,263	120	926	4,966	223	266	0
Private, total	118,152	38,950	14,108	377	1,024	55,034	3,261	2,737	2,661
Antioch University	0	0	0	0	0	0	0	0	0
Case Western Reserve Univ	86,168	18,089	10,164	344	265	54,525	186	2,595	0
Union Institute	0	0	0	0	0	0	0	0	0
University of Dayton	31,984	20,861	3,944	33	759	509	3,075	142	2,661
Oklahoma, total	113,279	20,540	9,167	9,967	2,625	56,861	821	9,854	3,444
Public, total	108,744	18,341	9,087	9,635	2,541	55,233	622	9,841	3,444
Okla Col Osteo Med & Surg	1,133	0	0	0	0	1,133	0	0	0
Oklahoma State University	53,655	9,812	3,811	1,003	1,029	29,247	238	6,076	2,439
University of Oklahoma	53,956	8,529	5,276	8,632	1,512	24,853	384	3,765	1,005
Private, total	4,535	2,199	80	332	84	1,628	199	13	0
Oral Roberts University	1,206	24	0	0	0	1,182	0	0	0
University of Tulsa	3,329	2,175	80	332	84	446	199	13	0
Oregon, total	161,127	7,310	18,592	24,950	4,089	92,235	2,646	4,613	6,692
Public, total	152,302	5,654	15,357	22,661	2,444	92,235	2,646	4,613	6,692
Oregon Hlth Sciences Univ	35,097	0	0	0	0	33,929	1,168	0	0
Oregon State University	91,355	5,130	4,670	20,097	1,213	51,912	10	2,299	6,024
Portland State University	3,374	244	1,098	54	28	387	63	1,186	314
University of Oregon	22,476	280	9,589	2,510	1,203	6,007	1,405	1,128	354
Private, total	8,825	1,656	3,235	2,289	1,645	0	0	0	0
Oregon Graduate Institute	8,825	1,656	3,235	2,289	1,645	0	0	0	0
Pennsylvania, total	761,130	169,444	59,537	16,620	61,839	386,274	11,816	41,229	14,371
Public, total	376,677	103,695	28,690	12,782	4,631	193,337	4,819	20,447	8,276
Pennsylvania State Univ	219,930	97,276	14,687	12,537	2,860	74,665	2,756	7,766	7,383
Temple University	45,482	218	3,051	26	357	34,089	912	6,675	154
University of Pittsburgh	111,265	6,201	10,952	219	1,414	84,583	1,151	6,006	739

See footnotes at end of table.

Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

State and Institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Pennsylvania, continued									
Private, total	384,453	65,749	30,847	3,838	57,208	192,937	6,997	20,782	6,095
Bryn Mawr College	895	0	204	73	38	356	33	151	40
Carnegie-Mellon Univ	101,635	25,982	7,169	1,676	47,868	11,008	4,007	3,074	851
Drexel University	17,983	11,101	2,510	1,554	875	800	209	934	0
Duquesne University	357	0	15	0	0	100	0	2	240
Hahnemann University	11,158	0	0	0	0	10,428	730	0	0
Lehigh University	26,004	18,214	5,585	469	210	929	224	354	19
Phila Col Osteopathic Med	512	0	0	0	0	512	0	0	0
Phila Col of Pharm & Sci	778	0	0	0	0	778	0	0	0
The Medical Col of Penna	20,542	0	0	0	0	20,542	0	0	0
Thomas Jefferson Univ	29,405	0	0	0	0	29,405	0	0	0
Univ of Pennsylvania	173,744	9,981	15,004	66	8,165	117,746	1,570	16,267	4,945
Villanova University	1,440	471	360	0	52	333	224	0	0
Rhode Island, total	79,801	13,298	7,028	19,055	11,111	25,650	1,762	926	971
Public, total	36,219	6,916	1,579	14,917	1,064	9,537	626	609	971
Univ of Rhode Island	36,219	6,916I	1,579I	14,917I	1,064I	9,537I	626I	609I	971I
Private, total	43,582	6,382	5,449	4,138	10,047	16,113	1,136	317	0
Brown University	43,564	6,382	5,440	4,138	10,047	16,113	1,136	308	0
Providence College	18	0	9	0	0	0	0	9	0
South Carolina, total	120,137	17,267	9,228	8,028	8,023	64,540	2,199	10,222	630
Public, total	120,137	17,267	9,228	8,028	8,023	64,540	2,199	10,222	630
Clemson University	56,699	14,179	2,852	56	5,853	28,864	80	4,584	231
Med Univ of So Carolina	23,017	0	0	0	0	23,017	0	0	0
Univ of South Carolina	40,421	3,088	6,376	7,972	2,170	12,659	2,119	5,638	399
South Dakota, total	12,449	1,028	362	1,939	0	7,672	34	837	577
Public, total	12,449	1,028	362	1,939	0	7,672	34	837	577
S Dak Sch Mines & Tech	2,596	373	73	1,573	0	0	0	0	577
South Dakota State Univ	8,472	655	103	366	0	6,888	0	460	0
Univ of South Dakota	1,381	0	186	0	0	784	34	377	0
Tennessee, total	214,764	42,046	18,319	4,289	5,144	130,037	5,207	7,787	1,935
Public, total	142,982	36,248	11,252	4,147	4,618	74,477	3,700	6,605	1,935
East Tennessee State Univ	1,629	0	24	13	0	1,566	9	17	0
Memphis State University	9,892	797	155	2,679	197	1,858	3,029	1,177	0
Tenn Technological Univ	6,641	5,599	353	0	27	636	2	24	0
Univ. Of Tennessee System	124,820	29,852	10,720	1,455	4,394	70,417	660	5,387	1,935
Private, total	71,782	5,798	7,067	142	526	55,560	1,507	1,182	0
Meharry Medical College	6,564	0	0	0	0	6,564	0	0	0
Vanderbilt University	65,218	5,798	7,067	142	526	48,996	1,507	1,182	0
Texas, total	1,008,969	133,669	99,251	84,929	26,503	574,616	5,578	34,495	49,928
Public, total	836,215	127,446	89,645	78,664	21,090	432,044	4,918	33,045	49,363
East Texas State Univ	401	0	280	0	13	28	0	80	0
Lamar University	779	49	33	447	27	6	0	217	0
Sam Houston State Univ	219	0	99	6	2	59	6	47	0
Stephen F Austin St Univ	1,417	0	123	49	88	1,015	18	45	79
Texas A & M University	250,706	52,541	19,721	52,220	3,992	102,993	860	10,912	7,467
Texas Tech University	34,048	8,930	3,245	847	605	15,826	83	4,056	456
Texas Woman's University	969	0	31	0	0	827	108	3	0
U Tex Hlth Sci Ctr Houstn	46,860	0	0	762	0	44,893	0	1,205	0
U Tex Hlth Sci Ctr S Anto	41,852	0	0	0	0	41,852	0	0	0
U Tex Med Brnch Galveston	33,502	0	0	0	0	33,502	0	0	0
U of Houston	34,684	8,020	16,033	1,275	1,076	5,231	1,347	700	1,002
UT MD Anderson Cancer Ctr	85,903	0	3,053	0	1,917	80,933	0	0	0

See footnotes at end of table.

Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

State and Institution	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Texas, continued									
Public, continued									
UT SW Medical Ctr-Dallas	79,920	0	0	0	0	79,920	0	0	0
Univ of North Texas	9,121	0	3,044	1,191	623	3,147	57	945	114
Univ of Tex at Arlington	7,064	4,517	1,602	87	389	352	3	114	0
Univ of Texas at Austin	193,337	50,944	35,845	20,919	11,426	18,367	2,204	13,882	39,750
Univ of Texas at Dallas	11,265	865	5,738	577	779	2,404	29	378	495
Univ of Texas at El Paso	4,168	1,580	798	284	153	689	203	461	0
Private, total	172,754	6,223	9,606	6,265	5,413	142,572	660	1,450	565
Baylor Col of Dentistry	788	0	0	0	0	788	0	0	0
Baylor Col of Medicine	134,681	0	0	0	0	134,681	0	0	0
Baylor University	1,841	0	776	37	60	138	0	830	0
Rice University	21,563	4,842	7,449	2,175	4,222	2,472	368	35	0
Southern Methodist Univ	9,363	1,381	874	4,051	1,131	680	98	583	565
Texas Christian Univ	888	0	507	2	0	183	194	2	0
Texas Col of Osteo Med	3,630	0	0	0	0	3,630	0	0	0
Utah, total	164,828	44,938	17,020	14,847	4,475	73,332	994	3,543	5,679
Public, total	153,284	39,811	14,295	14,723	4,266	71,720	941	1,849	5,679
University of Utah	83,340	15,959	8,633	3,477	3,990	49,974	687	620	0
Utah State University	69,944	23,852	5,662	11,246	276	21,746	254	1,229	5,679
Private, total	11,544	5,127	2,725	124	209	1,612	53	1,694	0
Brigham Young University	11,544	5,127I	2,725I	124I	209I	1,612I	53I	1,694I	0I
Vermont, total	42,743	869	1,020	368	233	37,781	1,381	39	1,052
Public, total	42,743	869	1,020	368	233	37,781	1,381	39	1,052
U of VT & State Agr Coll	42,743	869	1,020	368	233	37,781	1,381	39	1,052
Virginia, total	258,919	56,246	24,315	13,565	9,658	142,379	3,257	8,922	577
Public, total	249,483	55,723	23,893	13,459	9,398	134,254	3,257	8,922	577
College of William & Mary	7,633	0	2,142	4,145	792	300	115	139	0
George Mason University	4,220	1,632	381	0	581	361	283	982	0
Old Dominion U Res Fdn	9,107	3,461	1,133	1,229	791	2,431	53	9	0
University of Virginia	81,281	14,382	10,528	4,588	3,972	42,708	1,866	2,660	577
VA Polytech Inst & St U	104,266	36,123	8,378	3,497	3,198	47,777	705	4,588	0
Virginia Commonwlth Univ	42,976	125	1,331	0	64	40,677	235	544	0
Private, total	9,436	523	422	106	260	8,125	0	0	0
Eastern VA Medical School	8,125	0	0	0	0	8,125	0	0	0
Institute of Textile Tech	1,311	523	422	106	260	0	0	0	0
Washington, total	276,885	21,043	15,941	20,226	8,846	174,895	4,951	11,867	19,116
Public, total	276,885	21,043	15,941	20,226	8,846	174,895	4,951	11,867	19,116
University of Washington	221,712	16,738	13,381	19,198	8,256	136,184	4,553	4,286	19,116
Washington State Univ	55,173	4,305	2,560	1,028	590	38,711	398	7,581	0
West Virginia, total	39,368	6,894	1,754	1,378	4,806	23,389	437	710	0
Public, total	39,368	6,894	1,754	1,378	4,806	23,389	437	710	0
Marshall University	1,679	0	4	0	0	1,668	4	3	0
W VA Schl Osteopathic Med	120	0	0	0	0	120	0	0	0
West Virginia University	37,569	6,894	1,750	1,378	4,806	21,601	433	707	0
Wisconsin, total	336,815	38,127	30,762	23,326	8,792	202,691	9,226	22,205	1,686
Public, total	299,410	37,124	30,298	23,326	8,715	166,934	9,170	22,203	1,640
Univ of Wis-Madison	285,982	34,697	27,197	20,869	8,531	165,141	8,843	19,571	1,133
Univ of Wis-Milwaukee	13,428	2,427	3,101	2,457	184	1,793	327	2,632	507

See footnotes at end of table.

Table B-27. R&D expenditures at doctorate-granting institutions, by State, type of control, and science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

State and Institution	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Wisconsin, continued									
Private, total	37,405	1,003	464	0	77	35,757	56	2	46
Marquette University	2,454	1,003	464	0	77	806	56	2	46
Medical College of Wis	34,951	0	0	0	0	34,951	0	0	0
Wyoming, total	23,310	3,208	2,227	2,704	864	12,352	184	718	1,053
Public, total	23,310	3,208	2,227	2,704	864	12,352	184	718	1,053
University of Wyoming	23,310	3,208	2,227	2,704	864	12,352	184	718	1,053
Puerto Rico, total	41,941	1,074	2,787	1,167	78	35,665	60	958	152
Public, total	39,888	1,074	2,272	1,167	78	34,127	60	958	152
Univ of P R-Mayaguez	29,343	1,046	412	1,167	3	26,522	41	0	152
Univ of P R-Med Sci Cmpus	6,528	0	0	0	0	6,528	0	0	0
Univ of P R-Rio Piedras	4,017	28	1,860	0	75	1,077	19	958	0
Private, total	2,053	0	515	0	0	1,538	0	0	0
Catholic Univ of P R	515	0	515	0	0	0	0	0	0
Ponce School of Medicine	856	0	0	0	0	856	0	0	0
U Ctrl Del Caribe Esc Med	682	0	0	0	0	682	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	14,987,279	13,465,094	12,153,437	10,925,519	8,972,466	8,180,769	7,332,501	6,702,158
1 Johns Hopkins Univ 2/	648,395	557,016	510,896	440,844	590,184	509,009	476,290	412,714
2 Mass Inst of Technology	287,157	270,584	264,416	257,726	215,140	210,419	206,785	201,097
3 Cornell University	286,733	271,659	253,971	225,400	157,984	153,662	144,604	134,660
4 Stanford University	285,994	277,504	240,885	223,162	238,650	232,572	204,386	192,076
5 Univ of Wis-Madison	285,982	271,418	254,493	231,099	169,452	162,384	149,665	138,784
6 University of Michigan	280,905	250,169	224,890	187,859	174,875	160,854	137,558	118,069
7 University of Minnesota	258,614	236,115	222,381	201,743	132,880	119,789	109,003	100,308
8 Texas A & M University	250,706	231,161	219,853	207,362E	93,584	90,163	75,432	75,946
9 Univ of Cal Los Angeles	227,828	209,338	188,831	168,158	159,002	146,946	130,763	121,668
10 University of Washington	221,712	190,735	187,062	186,572	182,453	160,261	145,184	141,973
Total, 1st 10 insts.	3,034,026	2,765,699	2,567,678	2,329,925	2,114,204	1,946,059	1,779,670	1,637,295
11 Pennsylvania State Univ	219,930	188,444	165,841	146,270	114,646	106,020	93,200	82,412
12 Univ of Cal San Francisco	219,446	193,289	169,436	147,785	159,906	137,747	117,302	105,694
13 Univ of Cal San Diego	216,991	200,472	183,047	161,054	171,479	159,778	142,751	128,250
14 Univ of Ill Urbana	210,590	197,393	188,682	158,947	114,398	109,633	104,420	83,996
15 Univ of Cal Berkeley	209,967	186,372	175,273	158,990	124,371	116,565	108,828	102,578
16 Harvard University	209,519	190,429	169,074	154,390	143,451	133,003	119,955	111,503
17 Univ of Texas at Austin	193,337	172,608	168,931	145,324	94,311	89,982	88,395	75,152
18 Univ of Cal Davis	180,297	154,655	143,798	123,788	72,718	63,435	56,622	48,549
19 Georgia Institute of Tech	174,664	143,051	120,342	105,457	98,048	78,798	63,132	58,432
20 University of Arizona	174,119	155,464	138,726	124,790	80,533	73,309	65,024	61,973
Total, 1st 20 insts.	5,042,886	4,547,876	4,190,828	3,756,720	3,288,065	3,014,329	2,739,299	2,495,834
21 Univ of Pennsylvania	173,744	159,218	158,334	152,746	123,810	115,080	111,185	105,925
22 Columbia Univ Main Div	172,145	160,976	149,904	145,416	146,712	139,558	133,018	128,436
23 Yale University	171,139	162,188	145,818	136,072	138,835	132,952	116,943	107,600
24 Ohio State University	162,690	154,652	123,246	112,623	75,484	69,135	58,555	56,418
25 Univ of Southern Cal	162,013	150,009	134,995	116,399	119,005	112,615	101,749	92,906
26 Univ of MD College Park	149,510	135,531	126,239	101,650	58,924	55,365	55,194	43,769
27 University of Georgia	145,953	137,692	124,442	111,745	42,797	39,703	35,261	32,184
28 Univ. of Colorado	143,694	128,015	112,276	104,576	109,145	96,041	83,144	74,887
29 Baylor Col of Medicine	134,681	106,814	90,179	68,993	69,336	60,825	49,834	46,729
30 Duke University	131,090	113,968	89,556	78,831	99,036	86,240	67,925	62,879
Total, 1st 30 insts.	6,589,545	5,956,939	5,445,817	4,885,771	4,271,149	3,921,843	3,552,107	3,247,567
31 N C State Univ at Raleigh	128,891	115,440	102,647	92,695	37,783	34,256	33,662	30,851
32 Washington University	128,419	117,829	103,419	90,226	96,829	88,843	77,757	68,399
33 University of Florida	125,770	107,177	104,245	95,527	60,731	54,785	49,311	46,751
34 Univ. Of Tennessee System	124,820	101,869	91,520	78,249	57,763	43,108	36,902	34,569
35 Rutgers the St Univ of NJ	124,574	105,150	94,555	79,894	35,896	29,204	27,178	24,059
36 Purdue University	124,323	118,797	107,131	102,126	63,979	64,163	56,302	56,475
37 University of Rochester	123,997	114,061	101,598	95,824	101,049	92,533	80,322	75,939
38 Louisiana State Univ	122,357	114,698	102,070	91,709	40,114	35,578	31,089	27,808
39 Univ of NC at Chapel Hill	122,097	107,039	93,754	85,454	93,280	82,723	72,529	64,625
40 Michigan State University	121,456	116,320	111,810	100,861	51,741	49,771	44,989	47,725
Total, 1st 40 insts.	7,836,249	7,075,319	6,458,566	5,798,336	4,910,314	4,496,807	4,062,148	3,724,768
41 Northwestern University	118,991	102,755	88,920	80,178	57,510	54,245	49,286	46,755
42 University of Pittsburgh	111,265	98,609	84,183	74,059	81,217	72,462	62,060	55,805
43 Univ of Massachusetts	110,644	93,117	79,814	73,453	56,505	52,139	44,256	39,452
44 University of Chicago	109,429	98,541	91,879	88,026	90,459	80,967	75,889	73,304
45 University of Connecticut	109,328	89,630	81,575	74,287	46,184	38,953	36,884	36,142
46 University of Iowa	105,900	94,552	79,090	73,596	74,271	64,370	57,159	52,497
47 New York University	104,451	100,872	98,924	92,787	81,143	77,746	76,126	69,099
48 VA Polytech Inst & St U	104,266	89,955	80,552	75,450	38,597	33,771	32,129	30,259
49 Iowa St U of Sci & Tech	103,174	86,726	78,351	72,642	28,895	23,306	19,682	17,376
50 Carnegie-Mellon Univ	101,635	94,051	83,763	71,920	65,079	63,009	53,817	41,706
Total, 1st 50 insts.	8,915,332	8,024,127	7,305,617	6,574,734	5,530,174	5,057,775	4,569,436	4,187,163

See footnotes at end of table.

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 SUNY at Buffalo	100,291	87,635	70,474	64,404	64,453	60,097	51,212	47,308
52 California Inst of Tech	98,731	92,530	86,565	78,776	84,167	78,750	71,086	63,708
53 Univ Alabama Birmingham	98,302	85,030	72,692	59,401	68,204	62,369	54,534	45,337
54 Oregon State University	91,355	88,953	82,786	78,168	49,112	48,877	46,774	41,307
55 University of Miami	90,298	70,783	65,158	64,154	63,101	48,971	38,052	36,531
56 Case Western Reserve Univ	86,168	77,303	70,850	57,530E	68,632	59,078	53,580	47,032
57 UT MD Anderson Cancer Ctr	85,903	75,642	65,417	63,318	28,992	27,129	22,162	21,304
58 Univ of Ill Chicago	85,237	75,922	64,701	54,846	43,288	40,260	34,570	30,109
59 University of Utah	83,340	75,789	68,194	60,478	61,819	57,383	54,226	51,428
60 Princeton University	82,914	76,891	65,089	51,789	47,176	47,245	43,505	36,199
Total, 1st 60 insts.	9,817,871	8,830,605	8,017,543	7,207,598	6,109,118	5,587,934	5,039,137	4,607,426
61 Indiana University	81,793	73,526	65,341	59,160	58,334	52,498	44,211	40,024
62 University of Virginia	81,281	74,572	63,861	57,472	51,214	47,482	41,267	38,541
63 UT SW Medical Ctr-Dallas	79,920	70,392	62,907	52,619	51,254	48,357	45,382	38,504
64 SUNY at Stony Brook	79,455	79,410	54,850	54,197	49,726	54,017	40,302	35,249
65 Univ of MD Balt Prof Sch	75,854	68,787	57,931	36,934	35,970	33,102	26,244	21,735
66 Woods Hole Ocngrphic Inst	74,881	58,700	48,061	43,675	64,333	49,400	42,239	38,666
67 Yeshiva University	74,496	75,383	73,773	70,260	58,224	58,823	59,768	56,922
68 Univ of Missouri Columbia	74,055	66,365	61,212	57,653	22,312	20,170	20,250	20,068
69 Rockefeller University	73,945	68,588	66,760	63,216	41,192	37,452	37,983	35,738
70 Univ of Hawaii-Manoa	70,733	64,278	57,345	57,383	40,574	38,560	34,472	35,322
Total, 1st 70 insts.	10,584,284	9,530,606	8,629,584	7,760,167	6,582,251	6,027,795	5,431,255	4,968,195
71 Utah State University	69,944	59,273	41,343	42,351	42,449	34,763	22,109	22,814
72 University of Cincinnati	69,831	60,479	53,804	44,368	40,598	35,986	32,044	27,758
73 University of Kentucky	69,532	69,003	55,042	53,770	27,010	27,724	26,261	21,736
74 Univ of Nebraska-Lincoln	68,281	60,788	56,066	55,158	25,803	25,448	24,512	20,823
75 Univ of Cal Irvine	66,806	60,100	51,691	49,979	46,492	42,894	38,138	38,328
76 Boston University	66,325	61,505	58,299	53,225	56,402	51,918	49,406	45,457
77 Vanderbilt University	65,218	60,591	43,589	37,715	56,151	44,646	31,343	27,269
78 Emory University	64,713	60,896	58,887	51,115	46,497	43,668	36,698	32,819
79 Colorado State University	64,351	59,369	52,619	49,359	46,572	44,600	38,961	36,592
80 Univ of South Florida	60,973	40,396	38,633	11,707	26,576	8,841	7,890	7,344
Total, 1st 80 insts.	11,250,258	10,123,006	9,139,559	8,208,914	6,996,801	6,388,283	5,738,617	5,249,135
81 New Mexico State Univ	60,930	61,001	58,672	51,917	45,660	43,481	37,904	33,394
82 Wayne State University	59,521	50,509	39,335	33,589	28,167	22,716	16,927	15,789
83 University of Kansas	57,111	51,723	50,603	47,853	26,420	24,880	22,941	21,837
84 CUNY Mt Sinai Sch of Med	56,856	49,727	46,137	40,193	37,233	32,852	31,024	26,166
85 Univ of Alaska Fairbanks	56,701	49,856E	47,432I	45,008I	26,659	23,441E	21,523I	19,607I
86 Clemson University	56,699	49,375	46,495	38,963	12,484	13,148	9,016	7,550
87 Florida State University	55,245	50,679	46,420	44,179	24,897	24,027	21,416	21,850
88 Washington State Univ	55,173	51,319	48,865	46,392	22,697	21,361	21,274	20,115
89 Univ of Med & Dent of N J	54,451	42,027	32,222	30,322	27,983	21,849	16,989	15,840
90 University of Oklahoma	53,956	50,047	45,350	37,328	17,020	16,326	14,453	14,263
Total, 1st 90 insts.	11,816,901	10,629,269	9,601,090	8,624,658	7,266,021	6,632,364	5,952,084	5,445,546
91 Auburn University	53,814	52,737	48,045	47,930	15,179	18,243	13,446	11,893
92 Mississippi State Univ	53,670	45,005	40,405	43,813	17,694	13,556	12,387	12,781
93 Oklahoma State University	53,655	56,636	47,420	45,919	14,116	12,850	9,575	8,502
94 Georgetown University	53,597	44,783	35,981	29,254	37,351	30,666	24,477	19,894
95 Univ of Cal Riverside	53,213	52,983	51,158	47,881	15,584	16,672	15,001	14,626
96 University of New Mexico	52,970	47,729E	49,764E	49,856	23,934	24,862E	29,096	35,810
97 Tufts University	50,424	54,225	46,497	40,789I	40,771	41,953	37,148	32,696I
98 Univ of Cal Santa Barbara	50,067	46,598	42,704	36,516	39,227	36,205	32,856	27,320
99 Kans St U - Ag & App Sci	47,302	43,174	40,587	40,708	15,951	14,294	13,270	12,969
100 U Tex Hlth Sci Ctr Houstn	46,860	43,345	35,158	32,564	29,500	27,658	24,727	22,604
Total, 1st 100 insts.	12,332,473	11,116,484	10,038,809	9,039,888	7,515,328	6,869,323	6,164,067	5,644,641

See footnotes at end of table.

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
101 Temple University	45,482	40,941	36,013	32,610	25,232	20,137	18,352	18,573
102 Tulane University	45,195	42,619	38,393	34,871	24,095	23,727	21,836	18,420
103 Arizona State University	44,044	39,510	38,763	33,580	22,151	19,006	14,009	13,541
104 Brown University	43,564	41,556	38,110	31,906	34,506	35,150	32,024	25,333
105 Virginia Commonwlth Univ	42,976	42,951	42,329	38,729	30,078	31,150	31,095	27,242
106 U of VT & State Agr Coll	42,743	36,815	31,547	29,699	28,535	25,539	22,289	19,848
107 U Tex Hlth Sci Ctr S Anto	41,852	39,673	34,476	33,165	29,324	27,528	22,469	22,779
108 Univ of South Carolina	40,421	31,836	29,658	28,362	17,596	15,655	14,537	14,116
109 Rensselaer Polytech Inst	39,185	36,511	25,176	21,233	19,143	18,320	14,207	12,996
110 Dartmouth College	38,452	35,563	31,227	26,067I	27,222	25,729	21,864	18,816I
Total, 1st 110 insts.	12,756,387	11,504,459	10,384,501	9,350,110	7,773,210	7,111,264	6,376,749	5,836,305
111 West Virginia University	37,569	28,807	25,676	23,376	15,662	14,430	12,099	12,708
112 University of Delaware	37,194	32,023	31,681	28,798	17,083	13,708	13,662	12,578
113 Wake Forest University	37,156	30,568	23,596	20,705I	28,511	23,026	18,772	16,497I
114 Univ of Rhode Island	36,219E	35,940	27,369	27,805I	21,940	22,967	19,289	19,933I
115 Syracuse University	35,543	33,643	30,348	27,289	20,367	22,377	17,987	15,799
116 Oregon Hlth Sciences Univ	35,097	29,509	26,062	21,418	24,162	18,240	15,379	13,241
117 Medical College of Wis	34,951	33,231	30,218	21,356	21,432	19,803	15,551	13,600
118 U of Houston	34,684	26,803	24,378	22,053	16,358	14,152	11,040	9,680
119 Texas Tech University	34,048	28,722	27,876	25,068	11,130	11,620	11,089	10,501
120 U Tex Med Brnch Galveston	33,502	28,607	24,351	23,312I	23,152	19,717	16,738	15,307I
Total, 1st 120 insts.	13,112,350	11,812,312	10,656,056	9,591,290	7,973,007	7,291,304	6,528,355	5,976,149
121 Univ of Ark Fayetteville	32,842	28,104	27,435	28,566	8,955	8,193	7,696	8,612
122 University of Dayton	31,984	31,483	30,105	27,478	26,650	26,101	25,370	23,631
123 University of Idaho	31,879	30,078	24,070	23,068	12,207	10,970	8,720	8,987
124 SUNY Hlth Sci Ctr - Syrcs	31,125	24,541	21,186	18,065	9,520	7,497	6,427	5,181
125 Univ of Central Florida	30,991	11,307	9,571I	7,835E	11,153	3,476	2,701I	1,926E
126 Brandeis University	30,596	26,618	23,811I	21,006I	19,080	18,595	16,857I	15,119I
127 George Washington Univ	30,284	23,522	24,320	20,927I	25,220	19,888	20,142	17,579I
128 Thomas Jefferson Univ	29,405	24,231	20,357	12,402	21,311	16,766	14,070	7,307
129 Univ of P R-Mayaguez	29,343	27,091	24,491	22,728I	14,114	12,879	8,732	8,183I
130 Unif Serv Univ of Hlth Sc	27,062	15,991	12,076	12,960	12,706	12,613	12,076	12,860
Total, 1st 130 insts.	13,417,861	12,055,278	10,873,478	9,786,325	8,133,923	7,428,282	6,651,146	6,085,534
131 Univ Alabama Huntsville	26,186	18,628	11,158	7,284	18,001	11,998	7,548	4,442
132 Lehigh University	26,004	27,089	24,893	20,294	9,925	10,297	9,679	7,082
133 Montana State University	25,968	25,227	23,093I	20,960	8,781	10,710	8,727I	6,745
134 SUNY at Albany	24,240	19,625	18,815	16,433	15,171	13,595	13,019	11,662
135 Univ of New Hampshire	23,720	22,095	19,701	18,263	14,594	13,348	12,769	11,113
136 Univ of Cal Santa Cruz	23,651	22,163	22,222	17,818	12,543	12,263	11,432	10,652
137 Southern Ill U-Carbondale	23,357	20,310	18,654	18,814	6,571	6,816	6,045	5,644
138 University of Wyoming	23,310	20,429	17,316	18,663	13,804	11,136	8,701	9,321
139 Med Univ of So Carolina	23,017	20,949	19,658	19,278	11,547	10,956	10,797	10,297
140 University of Oregon	22,476	18,567	16,815	16,202	17,286	14,573	12,783	12,918
Total, 1st 140 insts.	13,659,790	12,270,360	11,065,803	9,960,334	8,262,146	7,543,974	6,752,646	6,175,410
141 N Mex Inst Mining & Tech	22,289	20,357	23,709	16,796	7,183	5,492	8,923	7,130
142 Rush University	21,741	19,827	16,342	13,969	7,582	6,553	7,823	7,191
143 Rice University	21,563	18,851	17,298I	15,747I	16,340	14,300	13,155I	12,012I
144 The Medical Col of Penna	20,542	15,277	11,081	9,775I	11,514	9,020	7,449	6,289I
145 SUNY Hlth Sci Ctr - Brkln	20,523	18,374	17,008	15,557I	11,552	10,754	10,494	9,946I
146 San Diego State Univ	20,124	19,370	16,973	9,958	13,048	12,688	11,386	6,031
147 Howard University	20,097I	18,301I	16,615	16,305	12,401I	11,391I	10,308	10,258E
148 Univ of Maine Orono	19,974	17,341	16,952	19,315	8,288	7,048	7,787	8,584
149 University of Notre Dame	19,385	17,845	14,409	13,581	13,209	13,579	10,399	9,984
150 The University of Alabama	18,395	15,836	13,362	11,221	6,542	6,376	5,139	3,455
Total, 1st 150 insts.	13,864,423	12,451,739	11,229,552	10,102,558	8,369,805	7,641,175	6,845,509	6,256,290

See footnotes at end of table.

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
151 Univ of Nevada - Reno	18,141	17,867	15,171	13,114I	8,647	9,989	8,033	7,454I
152 Drexel University	17,983	16,045	15,803	14,247	6,371	6,600	7,870	6,635
153 Univ of Missouri Rolla	17,692	18,823	14,712	14,027	3,459	3,670	4,261	3,906
154 University of N Dakota	17,518	15,806	16,404	14,303I	14,104	12,075	12,515	10,759I
155 U of Neb Med Ctr at Omaha	17,291	14,684	12,492	11,759	8,572	7,765	7,243	6,643
156 SUNY Col of Env Sci & For	17,221	12,917	11,690	11,249I	1,883	1,669	1,209	1,379I
157 University of Mississippi	17,092	15,125	13,377	12,970	10,841	9,317	8,247	7,786
158 Desert Research Institute	16,005	14,798	12,899	11,421	8,968	8,088	6,539	5,811
159 US Naval Postgrad School	15,306	15,515	13,053	13,216	15,170	15,487	12,934	13,006
160 Michigan Tech University	15,186	14,321	12,656	12,386	5,210	6,226	4,757	3,969
Total, 1st 160 insts.	14,033,858	12,607,640	11,367,809	10,231,250	8,453,030	7,722,061	6,919,117	6,323,638
161 University of Louisville	14,466	22,945	22,966	14,782	5,953	5,438	4,517	3,227
162 St Louis University	14,251	9,700	9,190I	8,684I	12,272	8,332	7,783I	7,236I
163 Florida A & M University	14,171	12,079	9,364	8,401I	10,509	8,674	8,100	7,683I
164 U of MD Center For EES	13,741	12,682	12,029	9,742	2,519	2,542	2,629	2,227
165 Univ of Wis-Milwaukee	13,428	12,424	11,079	10,383	5,447	4,662	3,939	3,643
166 Northeastern University	13,302	11,894	10,124	9,243	10,201	8,966	8,088	7,519
167 New York Medical College	12,958	13,817	11,794	9,327	10,021	11,097	10,038	8,086
168 CUNY City College	11,724	10,392	9,079	8,393I	9,005	8,071	7,552	6,942I
169 Brigham Young University	11,544	10,967	11,341	10,086I	4,785	5,660	5,020	4,128I
170 Ohio University	11,461	10,863	8,548	8,091	3,722	3,540	2,828	2,893
Total, 1st 170 insts.	14,164,904	12,735,403	11,483,323	10,328,382	8,527,464	7,789,043	6,979,611	6,377,222
171 N J Inst of Technology	11,402	8,327	10,418	8,579	1,082	1,085	847	940
172 Medical Col of Georgia	11,363	9,925	10,053	9,323	7,392	7,621	7,705	7,331
173 Polytechnic University	11,345	9,378	9,400	7,779	6,824	6,561	6,729	5,771
174 Loyola Univ - Chicago	11,303	8,327	7,123	6,375	6,051	4,447	3,804	3,303
175 Univ of Texas at Dallas	11,265	10,936	10,677	7,947	6,812	7,109	7,850	6,029
176 University of Lowell	11,242	10,903	8,364	8,453	5,974	5,608	5,087	6,096
177 Hahnemann University	11,158	8,551	9,062	10,694	7,809	6,818	6,792	9,094
178 Wright State University	11,043	9,551	7,260	9,374	5,714	5,012	3,695	3,939
179 U of Arkansas Med Sci Cam	10,834	9,851	8,094	6,813	5,258	5,846	4,561	3,773
180 Univ of South Alabama	10,503	8,578	7,668	7,574	6,966	5,273	4,715	4,866
Total, 1st 180 insts.	14,276,362	12,829,730	11,571,442	10,411,293	8,587,346	7,844,423	7,031,396	6,428,364
181 North Dakota State Univ	10,116	8,638	19,508	17,537	5,291	4,210	2,870	1,970
182 Memphis State University	9,892	8,201	7,132	5,315	2,299	1,647	1,268	908
183 Albany Medical College	9,827	11,694	13,287	12,869I	7,259	7,915	8,795	8,483I
184 University of Akron	9,728	7,114	7,190	5,360	2,525	2,199	1,785	1,824
185 Univ of Missouri Sys Off	9,500	8,734	9,512	8,735	678	756	858	759
186 San Jose State University	9,488	10,104	9,351I	8,598I	7,220	5,944	5,614I	5,284I
187 Colorado School of Mines	9,364	8,832	8,515	7,807	4,435	4,997	5,146	4,718
188 Southern Methodist Univ	9,363	6,814	4,938	4,459I	6,244	5,315	4,005	3,329I
189 SUNY at Binghamton	9,270	8,926	8,541	8,322	2,914	2,732	2,773	3,341
190 Univ of North Texas	9,121	7,038	5,724	4,789	2,813	2,828	3,022	2,506
Total, 1st 190 insts.	14,372,031	12,915,825	11,665,140	10,495,084	8,629,024	7,882,966	7,067,532	6,461,486
191 Old Dominion U Res Fdn	9,107	7,252	6,572	5,934I	6,175	5,334	4,444	4,297I
192 University of Denver	8,938	10,038	12,239	13,957	6,825	6,453	8,742	9,518
193 Oregon Graduate Institute	8,825	8,470	6,926	6,109I	6,582	6,513	4,997	4,218I
194 South Dakota State Univ	8,472	8,622	8,279	7,882	3,254	3,343	3,022	3,266
195 Eastern VA Medical School	8,125	6,614	4,320	3,441I	6,887	5,291	2,611	2,092I
196 Creighton University	7,934	7,650	5,910I	4,171I	2,386	1,828	1,520I	1,213I
197 Univ of Missouri Kan City	7,926	7,630	4,790	3,837	2,391	1,485	812	670
198 College of William & Mary	7,633	8,031	6,694	5,923	5,349	4,942	4,020	4,100
199 Cleveland State Univ	7,570	7,334	6,897	4,528	2,760	2,047	2,019	1,648
200 Clarkson University	7,523	7,804	7,442	6,975	4,359	5,141	5,253	4,676
Total, 1st 200 insts.	14,454,084	12,995,270	11,735,209	10,557,841	8,675,992	7,925,343	7,104,972	6,497,184

See footnotes at end of table.

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
201 Northern Illinois Univ	7,304	5,905	4,899	5,042	2,948	2,360	1,897	1,870
202 Univ of Tex at Arlington	7,064	7,670	5,760	4,950	1,406	2,255	1,667	955
203 Georgia State University	7,000	5,843	5,258	2,900	2,507	2,340	2,106	1,161
204 Illinois Inst of Tech	6,864	7,545	8,470	5,715	3,947	5,277	6,586	3,986
205 Univ of Southwestern LA	6,817	5,092	5,017	4,695I	818	863	589	518I
206 Med Col of Ohio at Toledo	6,809	5,495	7,652	7,267I	5,855	4,530	5,756	5,450I
207 NC Ag & Tech State Univ	6,706	6,401	4,461	5,754	5,752	5,717	3,603	4,763
208 Tenn Technological Univ	6,641	7,483	6,970	4,883I	650	731	711	606I
209 Meharry Medical College	6,564	5,228	4,797	4,137I	6,397	5,125	4,414	3,759I
210 Catholic Univ of America	6,554	5,759	5,268	3,964	6,077	5,446	5,061	3,777
Total, 1st 210 insts.	14,522,407	13,057,691	11,793,761	10,607,148	8,712,349	7,959,987	7,137,362	6,524,029
211 Univ of P R-Med Sci Cmpus	6,528	5,517	6,893	6,397I	5,235	4,218	5,389	5,078I
212 CUNY Hunter College	6,526	6,437	6,943	5,858	4,065	4,223	4,373	4,031
213 University of Montana	6,482	6,842	6,332	5,478I	2,771	2,925E	2,572	2,337I
214 Alabama A & M University	6,272	6,140	4,534	3,986I	4,801	5,121	4,356	3,830I
215 Inst Paper Sci and Tech	6,231	5,782	5,777	5,208	1,382	1,049	1,469	867
216 Boston College	6,152	6,137	5,099	4,926I	5,824	5,891	4,765	4,550I
217 Kent State University	5,534	5,086	4,573	3,662	2,613	3,027	2,993	2,218
218 Northern Arizona Univ	5,368	4,204	3,774	2,308	2,683	2,315	1,922	1,101
219 Tuskegee University	5,348	3,752	2,752	1,787I	4,967	3,543	2,598	1,689I
220 Loma Linda University	5,248	6,496	7,469	5,959I	2,294	3,867	4,801	3,834I
Total, 1st 220 insts.	14,582,096	13,114,084	11,847,907	10,652,717	8,748,984	7,996,166	7,172,600	6,553,564
221 East Carolina University	5,241	4,679	3,771	3,858	2,690	2,668	1,919	2,193
222 Union College (NY)	5,193	5,144	3,534I	1,926I	478	221	205I	191I
223 Stevens Institute of Tech	4,973	6,426	8,915	7,660I	2,532	2,838	4,100	3,839I
224 U of the Virgin Islands	4,734	4,666	2,386E	1,760	2,600	2,578	1,447E	1,043
225 Oakland University	4,673	3,132	4,500	4,016I	2,767	2,475	3,035	2,747I
226 University of Toledo	4,599	3,843	2,950I	2,058	1,966	1,894	1,583I	1,273
227 U Hlth Sci/Chcgo Med Sch	4,535	4,369	3,866	3,677	3,269	3,246	2,147	1,784
228 Univ of Sthrn Mississippi	4,413	3,517	3,840	2,440	3,588	2,484	1,858	1,311
229 U of MD Baltimore County	4,342	3,975	3,222	2,887	3,457	3,626	2,743	2,437
230 Morehouse School of Med	4,320	2,222	0I	0I	4,238	1,815	0	0I
Total, 1st 230 insts.	14,629,119	13,156,057	11,884,891	10,682,999	8,776,569	8,020,011	7,191,637	6,570,382
231 Bowling Green State Univ	4,311	3,142	2,439	2,018	1,770	1,475	1,037	1,338
232 George Mason University	4,220	3,834	2,368E	1,755I	1,171	1,480	571	474I
233 Worcester Poly Institute	4,208	3,814	3,562	3,708I	2,411	1,655	1,087	1,191I
234 Univ of Texas at El Paso	4,168	2,641	2,605	1,933	2,561	1,893	2,068	1,493
235 Univ of P R-Rio Piedras	4,017	4,741	4,175	3,904I	2,855	3,662	3,217	2,927I
236 New York Inst Technology	3,998	5,678	6,093	4,838I	0	352	373	442I
237 Southern U & A&M College	3,967	3,451	2,196	2,845	3,233	3,112	2,196	2,715
238 Wesleyan University	3,943	3,140	3,397	2,456	2,193	2,007	1,890	1,841
239 Alfred University	3,874	3,829	2,591	1,929	449	285	382	349
240 American University	3,765	3,917	3,286	2,720I	3,480	3,623	2,980	2,425I
Total, 1st 240 insts.	14,669,590	13,194,244	11,917,603	10,711,105	8,796,692	8,039,555	7,207,438	6,585,577
241 Jackson State University	3,747	3,403	2,260	2,076I	3,624	2,801	2,040	1,862I
242 Texas Col of Osteo Med	3,630	4,461	3,560	3,247	2,518	2,508	2,381	1,914
243 Florida Inst of Tech	3,531	2,505	1,918	1,886	898	552	577	656
244 Florida Atlantic Univ	3,469	3,045	2,665	2,059	1,295	847	648	659
245 Wichita State University	3,443	4,758	2,741	2,018	1,921	3,228	1,175	746
246 Tennessee State Univ	3,442	3,408	2,719	2,661	3,382	3,382	2,717	2,660
247 Portland State University	3,374	2,810	2,737	2,298I	1,999	1,923	1,999	1,676I
248 Fairleigh Dickinson Univ	3,356	4,196	3,210	2,276	2,355	3,274	2,402	1,501
249 University of Tulsa	3,329	3,333	2,852I	2,371I	926	911	823I	736I
250 Louisiana Tech University	3,230	2,828	2,775	2,610I	0	760	828	745I
Total, 1st 250 insts.	14,704,141	13,228,991	11,945,040	10,734,607	8,815,610	8,059,741	7,223,028	6,598,732

See footnotes at end of table.

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
251 Cal Poly St U San Luis Ob	3,182	1,795	1,615I	1,437I	475	653	586I	523I
252 CUNY Grad Sch & Univ Ctr	3,069	2,189	2,336	2,569	2,112	1,690	1,848	1,833
253 Mercer University	3,043	931	620	428	1,812	386	381	313
254 U of MD Eastern Shore	2,944	1,736	1,522	1,615	2,203	1,736	1,522	1,606
255 Texas A & I University	2,941	2,470	2,288I	2,109I	1,118	847	742I	640I
256 Lincoln University	2,901	NA	NA	NA	2,706	NA	NA	NA
257 Chas R Drew U of Med & Sc	2,898	2,826	2,913	1,942I	2,898	2,826	2,913	1,942I
258 Fordham University	2,648	2,386	2,190	1,850I	2,063	1,752	1,805	1,525I
259 Virginia State University	2,620	2,476	2,356I	2,236I	2,056	2,476	2,326I	2,176I
260 S Dak Sch Mines & Tech	2,596	2,418	1,916	1,978	2,128	1,815	1,462	1,251
Total, 1st 260 insts.	14,732,983	13,248,218	11,962,796	10,750,771	8,835,181	8,073,922	7,236,613	6,610,541
261 Illinois State University	2,559	2,578	2,296	1,758	973	1,011	854	642
262 Marquette University	2,454	2,411	1,621	1,559	1,487	1,671	1,080	965
263 Univ of Missouri St Louis	2,439	2,218	1,824	1,950	1,430	779	698	913
264 Miami University (Ohio)	2,364	2,194I	2,024I	1,854I	1,659	1,479I	1,301I	1,123I
265 Langston University	2,349	NA	NA	NA	1,961	NA	NA	NA
266 CUNY Queens College	2,301	2,204	2,086I	1,971I	1,919	1,612	1,461I	1,312I
267 University of D C	2,188I	1,973	1,485	2,371	1,289I	1,205	738	1,706
268 Western Michigan Univ	2,181I	1,949	1,267	1,600	430I	391	227	306
269 Fort Valley State College	2,173	NA	NA	NA	1,741	NA	NA	NA
270 Hampton University	2,168	NA	NA	NA	2,168	NA	NA	NA
Total, 1st 270 insts.	14,756,159	13,263,745	11,975,399	10,763,834	8,850,238	8,082,070	7,242,972	6,617,508
271 Prairie View A & M Univ	2,157	1,741E	1,498	2,015I	1,907	1,560E	1,334	1,824I
272 Univ of N C at Charlotte	2,014	2,085	1,870I	1,656I	817	483	434I	386I
273 Occidental College	2,011	1,535	1,482I	1,431I	442	376	334I	296I
274 Cal Sch Prof Psych-Fresno	1,922	1,015	535	267I	1,566	940	476	238I
275 Alcorn State University	1,850	1,692E	1,623I	1,554I	1,850	1,692I	1,623I	1,554I
276 Baylor University	1,841	934	931	870I	346	353	329	263I
277 Smith College	1,774	1,264	1,265I	1,265I	903	411	375I	339I
278 Univ of Wis-Superior	1,745	1,553	1,659	1,412	1,495	1,309	1,414	1,253
279 Albany State College	1,725	366	263	207I	653	348	263E	207I
280 Kentucky State University	1,721	1,697	1,856	1,656I	1,721	1,697	1,827	1,636I
Total, 1st 280 insts.	14,774,919	13,277,627	11,988,381	10,776,167	8,861,938	8,091,239	7,251,381	6,625,504
281 Marshall University	1,679	1,526	938	837	1,647	1,484	901	818
282 Chicago Col of Osteo Med	1,651	2,252	1,772	1,268	314	526	419	119
283 East Tennessee State Univ	1,629	1,163	1,258	1,136I	919	447	486	427I
284 Univ of West Florida	1,619	1,313	2,099I	2,882I	327	436	709I	982I
285 NE Ohio Univ Med School	1,616	1,956	1,349	1,020	811	719	612	681
286 Eastern Washington Univ	1,615	1,333	1,384	1,098	738	532	488	559
287 Northeast Missouri St U	1,605	772	402	272I	122	38	50	25I
288 Air Force Inst of Tech/Nr	1,567I	1,400	456	370I	1,567I	1,400	456	370I
289 Amherst College	1,557	1,549	1,400I	1,254I	1,047	1,091	1,015I	942I
290 Cal Sch Prof Psych-L A	1,551	616	500	500	1,383	322	164	164
Total, 1st 290 insts.	14,791,008	13,291,507	11,999,939	10,786,804	8,870,813	8,098,234	7,256,681	6,630,591
291 Texas Southern Univ	1,519	1,703	1,491I	1,279I	1,293	1,419	1,263I	1,107I
292 Villanova University	1,440	696	755	547I	885	223	459	366I
293 Seton Hall University	1,417I	1,290I	1,171I	1,058I	1,236I	1,135I	1,027I	935I
294 Stephen F Austin St Univ	1,417	791	863	896I	332	283	233	308I
295 Santa Clara University	1,396	1,355	1,094	962	672	712	746E	642
296 Wentworth Inst of Tech	1,383	1,457	1,431I	1,405I	1,383	1,457	1,431I	1,405I
297 Univ of South Dakota	1,381	1,287	1,200I	1,113I	784	685	645I	605I
298 Calif St Poly Univ Pomona	1,314	1,626	1,340I	1,058I	362	503	422I	345I
299 Idaho State University	1,312	711	709	661	378	226	268	341
300 Institute of Textile Tech	1,311	1,678	1,238	1,172I	0	0	0	0I
Total, 1st 300 insts.	14,804,898	13,304,101	12,011,231	10,796,955	8,878,138	8,104,877	7,263,175	6,636,645

See footnotes at end of table.

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
301 Xavier University of LA	1,294	NA	NA	NA	1,294	NA	NA	NA
302 University of Detroit	1,282	805	798I	795I	55	34	82I	129I
303 Pomona College	1,264	536	600I	662I	370	358	435I	512I
304 Clark University	1,256	1,111	1,058	1,335I	794	820	942	1,139I
305 Oral Roberts University	1,206	2,637	2,519I	2,401I	290	388	378I	369I
306 Tougaloo College	1,191	NA	NA	NA	787	NA	NA	NA
307 CUNY Col Staten Island	1,171	867	788I	712I	579	371	334I	301I
308 Fisk University	1,157	1,741	862	732I	1,131	1,379	777	661I
309 Univ of Ark Pine Bluff	1,148	1,199	1,047	1,010	1,148	1,199	1,047	1,010
310 Okla Col Osteo Med & Surg	1,133	1,278	1,222	1,001	715	916	651	420
Total, 1st 310 insts.	14,817,000	13,314,275	12,020,125	10,805,603	8,885,301	8,110,342	7,267,821	6,641,186
311 Nova University	1,108	962	873	730I	981	839	779	632I
312 Morehouse College	1,093	NA	NA	NA	350	NA	NA	NA
313 SUNY College Plattsburgh	1,030	1,164	922	1,075	755	912	742	469
314 Delaware State College	1,027	NA	NA	NA	920	NA	NA	NA
315 New Sch For Soc Research	1,000	1,282	585	425I	251	384	422	298I
316 University of the Pacific	990	968I	951I	934I	990	941I	894I	847I
317 Texas Woman's University	969	825	709	740	325	243	173	209
318 Indiana State University	967	949	541	782	340	340	184	203
319 De Paul University	905	576	617	376I	772	468	189	142I
320 Bryn Mawr College	895	817	807	565	536	687	696	435
Total, 1st 320 insts.	14,826,984	13,321,818	12,026,130	10,811,230	8,891,521	8,115,156	7,271,900	6,644,421
321 Texas Christian Univ	888	737	912	1,124	488	302	493	636
322 South Carolina St College	883I	796	878I	955I	771I	721	810I	899I
323 Univ of Wis-Parkside	883	704	659I	614I	651	497	465I	433I
324 Central Michigan Univ	866	1,025	1,164	669	179	276	134	110
325 Ponce School of Medicine	856	663	657	715	782	642	602	607
326 Coppin State College	834	NA	NA	NA	388	NA	NA	NA
327 CUNY York College	826	723	659	779I	754	673	559	634I
328 Univ of N C at Greensboro	823	455	495	386	596	278	370	256
329 Selma University	816	NA	NA	NA	816	NA	NA	NA
330 Ball State University	798	696	664	725	178	197	317	293
Total, 1st 330 insts.	14,835,457	13,327,617	12,032,218	10,817,197	8,897,124	8,118,742	7,275,650	6,648,289
331 Baylor Col of Dentistry	788	692	598	629	641	525	450	407
332 Lamar University	779	202	417	330	388	2	64	58
333 Phila Col of Pharm & Sci	778	405	342	425	288	49	47	83
334 Claremont Graduate School	746	1,353	1,367	1,280I	106	337	343	354I
335 Kirksville Col Osteo Med	727	791I	855	769I	306	517I	727	641I
336 Barnard College	717	677	670I	667I	665	587	542I	499I
337 Arkansas State University	715	432	422I	416I	83	46	61I	73I
338 U Ctrl Del Caribe Esc Med	682	540	577	819	640	525	577	809
339 Central State University	673	NA	NA	NA	449	NA	NA	NA
340 Norfolk State University	652	425	304	456	648	400	266	456
Total, 1st 340 insts.	14,842,714	13,333,134	12,037,770	10,822,988	8,901,338	8,121,730	7,278,727	6,651,669
341 Winston-Salem State Univ	650	NA	NA	NA	650	NA	NA	NA
342 Morgan State University	649	742E	635	886	638	742E	346	860
343 CUNY Bernard Baruch Col	646	194	234I	266I	287	125	125I	125I
344 Univ of Wis-Stout	635	464	379I	297I	39	82	63I	48I
345 St John's University (NY)	632	814	769I	726I	361	308	290I	274I
346 Univ of Wis-Green Bay	616	376	402I	425I	252	165	212I	258I
347 West Texas State Univ	597	470	677	524	120	124	177	66
348 Adelphi University	592	466I	341	317I	280	192I	105	138I
349 Columbia U Teachers Col	581	900	765	644I	230	186	460	367I
350 Milwaukee School of Eng	565	640	614I	594I	0	0	0I	0I
Total, 1st 350 insts.	14,848,877	13,338,200	12,042,586	10,827,667	8,904,195	8,123,654	7,280,505	6,653,805

See footnotes at end of table.

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
351 North Carolina Cntrl Univ	555E	571	515I	464I	422E	350	317I	286I
352 Univ of Wis-Eau Claire	544	369	324I	281I	355	254	218I	182I
353 Univ of Wis-La Crosse	531	309	347	338	108	79	116	70
354 Catholic Univ of P R	515	443	522	514I	492	416	513	508I
355 Phila Col Osteopathic Med	512	381	344	233	302	179	168	71
356 Benedict College	503	NA	NA	NA	503	NA	NA	NA
357 Southern Univ-New Orleans	500	NA	NA	NA	420E	NA	NA	NA
358 SUNY Col of Optometry	494	375	518	448I	292	286	398	344I
359 Johnson C. Smith Univ	480	NA	NA	NA	480	NA	NA	NA
360 Dillard University	469	0	0	0I	0	0	0	0I
Total, 1st 360 insts.	14,853,980	13,340,648	12,045,156	10,829,945	8,907,569	8,125,218	7,282,235	6,655,266
361 SUNY College Oswego	467	341	334	422I	76	58	236	229I
362 Grand Valley State Cols	465	576	484I	392I	7	0	5I	10I
363 University of Portland	462	598	481I	365I	0	200	160I	120I
364 Alabama State University	456	NA	NA	NA	456	NA	NA	NA
365 East Stroudsburg U of PA	447	486	414I	347I	165	107	90I	75I
366 Bethune Cookman College	440	NA	NA	NA	420	NA	NA	NA
367 Northeast Louisiana Univ	439	386	308	315	56	35	25	6
368 Univ of Wis-Stevens Point	432	362	380I	394I	226	180	208I	236I
369 Shaw University	430	NA	NA	NA	98	NA	NA	NA
370 Univ of Nebraska at Omaha	410	235	186	151	62	56	75	24
Total, 1st 370 insts.	14,858,428	13,343,632	12,047,743	10,832,331	8,909,135	8,125,854	7,283,034	6,655,966
371 East Texas State Univ	401	269	429	408	89	1	12	8
372 Spelman College	399	NA	NA	NA	272	NA	NA	NA
373 Knox College	382	292	250I	212I	239	164	145I	126I
374 Hofstra University	366	165	258	278	256	91	215	201
375 Talladega College	366	NA	NA	NA	350	NA	NA	NA
376 Bennett College	364	NA	NA	NA	229	NA	NA	NA
377 Fayetteville State Univ	360	NA	NA	NA	258	NA	NA	NA
378 Duquesne University	357	357	357	380I	68	68	68	54I
379 SUNY College Brockport	357	219	205I	195I	230	155	144I	135I
380 Abilene Christian Univ	353	334	295I	260I	89	66	56I	47I
Total, 1st 380 insts.	14,862,133	13,345,268	12,049,537	10,834,064	8,911,215	8,126,399	7,283,674	6,656,537
381 Lincoln University (PA)	349	867	648I	432I	319	789	591I	394I
382 Long Island University	313	572	324	116	191	346	247	64
383 SUNY College Fredonia	313I	282	277I	272I	129I	121	101I	83I
384 Seattle University	241	167	0	10I	74	64	0	5I
385 US International Univ	224	0	0	0	61	0	0	0
386 Sam Houston State Univ	219	206	320	390	84	73	115	114
387 Univ of Wis-Oshkosh	217	166	145I	127I	161	147	127I	109I
388 Sul Ross State University	215	155	141I	129I	98	107	96I	87I
389 Rust College	214	NA	NA	NA	214	NA	NA	NA
390 Canisius College	209	309	289I	270I	194	279	243I	211I
Total, 1st 390 insts.	14,864,647	13,347,992	12,051,681	10,835,810	8,912,740	8,128,325	7,285,194	6,657,604
391 Andrews University	200	190E	160I	130I	24	23E	20I	19I
392 Kutztown Univ of Penn	195	360	330I	306I	37	31	35I	39I
393 SUNY College Geneseo	188	218	179I	142I	151	173	142I	111I
394 Savannah State College	179	NA	NA	NA	179	NA	NA	NA
395 SUNY College Cortland	168	151	127I	104I	102	78	67I	58I
396 Drake University	167	163	144I	126I	12	21	26I	30I
397 Philander Smith College	165	NA	NA	NA	154	NA	NA	NA
398 Morris Brown College	164	NA	NA	NA	164	NA	NA	NA
399 Univ of Northern Iowa	156	95	78I	62I	108	91	74I	59I
400 Southern Univ-Shreveport	148	NA	NA	NA	148	NA	NA	NA
Total, 1st 400 insts.	14,866,377	13,349,169	12,052,699	10,836,680	8,913,819	8,128,742	7,285,558	6,657,920

See footnotes at end of table.

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
401 Potsdam College of SUNY	145	113	144I	170I	27	11	25I	33I
402 Univ of Wis-River Falls	142	85	73I	65I	43	35	28I	23I
403 St Olaf College	136	210	216I	222I	97	153	166I	178I
404 Univ of Wis-Whitewater	134	70	60I	53I	107	37	28I	21I
405 W VA Schl Osteopathic Med	120	85	90	78I	30	22	11	5I
406 Xavier University	116	149	234I	318I	0	0	45I	88I
407 Augsburg College	115	90	82I	75I	115	90	80I	71I
408 SUNY College New Paltz	107	36	220	198I	54	1	103	85I
409 Grambling State Univ	106	64	136	137I	106	64	128	131I
410 Stillman College	104	NA	NA	NA	104	NA	NA	NA
Total, 1st 410 insts.	14,867,602	13,350,071	12,053,954	10,837,996	8,914,502	8,129,155	7,286,172	6,658,555
411 Monmouth College (NJ)	100	0	0I	0I	100	0	0I	0I
412 Univ Osteo Med & Hlth Sci	97	108	20	12I	86	88	0	0I
413 Southern Oregon St Col	89	0	0	0	56	0	0	0
414 Chapman College	81E	81	70I	60I	75E	75	60I	48I
415 Univ of Northern Colorado	81	32	50	61	4	1	10	0
416 West Virginia State Col	81	NA	NA	NA	75	NA	NA	NA
417 Goucher College	78	62	72I	82I	27	25	33I	37I
418 Northeastern Ill Univ	77	37	52I	63I	26	0	13I	22I
419 Northwestern St Univ La	77	7	9I	11I	0	0	2I	3I
420 Colorado College	74	53	72I	85I	0	0	11I	16I
Total, 1st 420 insts.	14,868,437	13,350,451	12,054,299	10,838,370	8,914,951	8,129,344	7,286,301	6,658,681
421 Cal Sch Prof Psych-S D	62	59	0	0I	0	0	0	0I
422 Bemidji State University	60	48	40I	36I	11	14	8I	6I
423 Fuller Theological Sem	60	50	20	12	3	0	0	9
424 Jarvis Christian College	60	NA	NA	NA	60	NA	NA	NA
425 Knoxville College	60	NA	NA	NA	50	NA	NA	NA
426 Univ of Wis-Platteville	47	10	13I	13I	0	0	1I	1I
427 Pacific Lutheran Univ	44	70	75I	77I	10	35	43I	44I
428 Mass Col Phar/Allied Hlth	41	90I	137I	184I	0	5I	9I	13I
429 Tarleton State University	38	44	44	53I	0	0	0	0I
430 Elizabeth City State Univ	26	NA	NA	NA	26	NA	NA	NA
Total, 1st 430 insts.	14,868,935	13,350,822	12,054,628	10,838,745	8,915,111	8,129,398	7,286,362	6,658,754
431 Montclair State College	25	36	45I	47I	0	0	2I	4I
432 Trenholm State Tech Col	22	NA	NA	NA	5	NA	NA	NA
433 Providence College	18	47	37	24I	0	0	0	0I
434 Miss Valley State Univ	14	31	0	0I	14	31	0	0I
435 Biola University	13	0	0	0	0	0	0	0
436 SUNY College Oneonta	12	42	57I	71I	0	0	17I	31I
437 Col Osteo Med of Pacific	11	0	0	0	0	0	0	0
438 Antioch University	0	0	1I	2I	0	0	1I	2I
439 Bowie State University	0	NA	NA	NA	0	NA	NA	NA
440 Cal Sch Prof Psych-Berkly	0	0	0	0	0	0	0	0
Total, 1st 440 insts.	14,869,050	13,350,978	12,054,768	10,838,889	8,915,130	8,129,429	7,286,382	6,658,791
441 Calif St Univ Stanislaus	0	0	431I	862I	0	0	0I	0I
442 Cheyney University of PA	0E	NA	NA	NA	0E	NA	NA	NA
443 Claflin College	0E	NA	NA	NA	0E	NA	NA	NA
444 Clark Atlanta University	0E	NA	NA	NA	0E	NA	NA	NA
445 Fielding Institute	0	0	0	0	0	0	0	0
446 Mayo Grad School of Med	0	0	0	0I	0	0	0	0I
447 Oakwood College	0	NA	NA	NA	0	NA	NA	NA
448 Paul Quinn College	0	NA	NA	NA	0	NA	NA	NA
449 Rand Grad Inst Pol Stdies	0	0	0	0I	0	0	0	0I
450 SUNY College Buffalo	0I	0E	131I	260I	0I	0E	131I	260I
Total, 1st 450 insts.	14,869,050	13,350,978	12,055,330	10,840,011	8,915,130	8,129,429	7,286,513	6,659,051

See footnotes at end of table.

Table B-28. Total and federally financed R&D expenditures at universities and colleges: fiscal years 1986-89 1/--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
451 Slippery Rock Univ of PA	0	45	36I	27I	0	0	0I	0I
452 St Bonaventure University	0	3I	6E	4I	0	0I	0	0I
453 St Louis Community Col	0	0	0I	0I	0	0	0I	0I
454 The Wright Institute	0	0	0	0	0	0	0	0
455 U of California System	0	26,439	19,307	13,926	0	473	528	547
456 Union Institute	0	0	0	0I	0	0	0	0I
457 Univ of Health Sciences	0	58	83	54I	0	0	0	0I
458 Voorhees College	0	NA	NA	NA	0	NA	NA	NA
459 Wiley College	0	NA	NA	NA	0	NA	NA	NA
Total, 1st 459 insts.	14,869,050	13,377,523	12,074,762	10,854,022	8,915,130	8,129,902	7,287,041	6,659,598
Total, all other sampled insts.	0	87,571	78,675	71,497	0	50,867	45,460	42,560
Estimated total non-sampled insts.	118,229	0	0	0	57,336	0	0	0

1/ Does not include R&D expenditures at university associated federally funded research and development centers (FFRDCs). See tables B-72 and B-73.

2/ Includes Applied Physics Laboratory with $431 million in total and $422 million in federally financed R&D expenditures.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-29. Non-Federal R&D expenditures at universities and colleges: fiscal years 1982-89

[Dollars in thousands]

Institution ranking	Total							
	1989	1988	1987	1986	1985	1984	1983	1982
Total, all institutions	6,014,813	5,284,325	4,820,936	4,223,361	3,630,270	3,193,232	2,893,932	2,559,683
1 Texas A & M University	157,122	140,998	144,421	131,416E	113,553E	104,196E	93,072E	85,026E
2 Cornell University	128,749	117,997	109,367	90,740	83,907	68,683	63,138	55,231
3 University of Minnesota	125,734	116,326	113,378	101,435	85,546	78,734	71,804	63,422
4 Univ of Wis-Madison	116,530	109,034	104,828	92,315	84,436	73,486	68,256	56,501
5 Univ of Cal Davis	107,579	91,220	87,176	75,239	67,210	60,355	54,679	47,249
6 University of Michigan	106,030	89,315	87,332	69,790	57,566	56,646	48,744	45,317
7 Pennsylvania State Univ	105,284	82,424	72,641	63,858	43,097	34,617	32,892	29,011
8 University of Georgia	103,156	97,989	89,181	79,561	62,850	57,248	48,231	43,458
9 Univ of Texas at Austin	99,026	82,626	80,536	70,172	61,628	58,182	52,339	39,463
10 Univ of Ill Urbana	96,192	87,760	84,262	74,951	59,027	48,016	39,329	38,622
Total, 1st 10 insts.	1,145,402	1,015,689	973,122	849,477	718,820	640,163	572,484	503,300
11 University of Arizona	93,586	82,155	73,702	62,817	54,071	47,535	44,451	44,134
12 N C State Univ at Raleigh	91,108	81,184	68,985	61,844	59,767	50,156	36,623	34,564
13 Univ of MD College Park	90,586	80,166	71,045	57,881	52,540	47,028	46,420E	33,196E
14 Rutgers the St Univ of NJ	88,678	75,946	67,377	55,835	35,445	31,584	30,835	24,295
15 Ohio State University	87,206	85,517	64,691	56,205	50,110	41,342	39,422	36,624
16 Univ of Cal Berkeley	85,596	69,807	66,445	56,412	53,121	46,158	42,034	35,161
17 Louisiana State Univ	82,243	79,120	70,981	63,901	64,194	53,858	51,622	50,314
18 Georgia Institute of Tech	76,616	64,253	57,210	47,025	40,096	37,266	33,391	32,770
19 Iowa St U of Sci & Tech	74,279	63,420	58,669	55,266	51,246	41,717	43,811	36,635
20 Mass Inst of Technology	72,017	60,165	57,631	56,629	53,031	47,196	37,548	35,271
Total, 1st 20 insts.	1,987,317	1,757,422	1,629,858	1,423,292	1,232,441	1,084,003	978,641	866,264
21 Michigan State University	69,715	66,549	66,821	53,136	45,910	41,293	35,976	33,602
22 Univ of Cal Los Angeles	68,826	62,392	58,068	46,490	40,055	35,610	29,567	25,072
23 Univ. Of Tennessee System	67,057	58,761	54,618	43,680	40,722	29,576	27,648	26,162
24 Harvard University	66,068	57,426	49,119	42,887	34,507E	30,900E	28,778E	27,890E
25 VA Polytech Inst & St U	65,669	56,184	48,423	45,191	36,316	30,023	27,396	21,942
26 Baylor Col of Medicine	65,345	45,989	40,345	22,264	21,448	19,368	18,214	12,809
27 University of Florida	65,039	52,392	54,934	48,776	49,267	45,111	39,759	35,192
28 University of Connecticut	63,144	50,677	44,691	38,145	36,211	24,575	23,942	21,880
29 Northwestern University	61,481	48,510	39,634	33,423	30,020	27,537	14,556	13,082
30 Purdue University	60,344	54,634	50,829	45,651	40,324	39,954	33,363	25,350
Total, 1st 30 insts.	2,640,005	2,310,936	2,137,340	1,842,935	1,607,221	1,407,950	1,257,840	1,109,245
31 Univ of Cal San Francisco	59,540	55,542	52,134	42,091	35,733	30,582	22,212	19,746
32 Johns Hopkins Univ	58,211	48,007	34,606	28,130	31,577	19,032	20,729E	18,747E
33 UT MD Anderson Cancer Ctr	56,911	48,513	43,255	42,014	36,729	32,938	29,397	22,809
34 Univ of Massachusetts	54,139	40,978	35,558	34,001	27,227	24,020	21,363	16,969E
35 Univ of Missouri Columbia	51,743	46,195	40,962	37,585	32,188	28,750	28,088	25,374
36 Univ of Pennsylvania	49,934	44,138	47,149	46,821	37,504	32,132	32,983	31,822
37 Stanford University	47,344	44,932	36,499	31,086	26,762	25,155	22,573	16,265
38 Univ of Cal San Diego	45,512	40,694	40,296	32,804	29,918	25,638	23,575	22,694
39 Clemson University	44,215	36,227	37,479	31,413	22,361	23,232	19,821	14,356
40 Univ of Southern Cal	43,008	37,394	33,246	23,493	20,857	23,039	26,419	32,039
Total, 1st 40 insts.	3,150,562	2,753,556	2,538,524	2,192,373	1,908,077	1,672,468	1,505,000	1,330,066
41 University of Kentucky	42,522	41,279	28,781	32,034	30,890	29,136	27,043	23,897
42 Univ of Nebraska-Lincoln	42,478	35,340	31,554	34,335	30,653	28,725	31,847	30,282
43 Oregon State University	42,243	40,076	36,012	36,861	33,651	26,838	27,193	24,461
44 Univ of Ill Chicago	41,949	35,662	30,131	24,737	22,377	19,715	19,948	13,650I
45 Univ of MD Balt Prof Sch	39,884	35,685	31,687	15,199	12,359I	9,520I	6,681I	3,842I
46 Oklahoma State University	39,539	43,786	37,845	37,417	37,261	39,557	34,018I	28,481
47 University of Washington	39,259	30,474	41,878	44,599	28,132	27,162	25,011	24,057
48 Auburn University	38,635	34,494	34,599	36,037	26,042	21,529	18,093	15,783
49 Univ of Cal Riverside	37,629	36,311	36,157	33,255	30,369	27,106	25,634	24,322
50 University of Oklahoma	36,936	33,721	30,897	23,065	25,061	24,126	26,781	16,262
Total, 1st 50 insts.	3,551,636	3,120,384	2,878,065	2,509,912	2,184,872	1,925,882	1,747,249	1,535,103

See footnotes at end of table.

Table B-29. Non-Federal R&D expenditures at universities and colleges: fiscal years 1982-89--Continued

[Dollars in thousands]

Institution ranking	Total							
	1989	1988	1987	1986	1985	1984	1983	1982
51 Carnegie-Mellon Univ	36,556	31,042	29,946	30,214	22,626	20,368	12,628	10,138
52 Mississippi State Univ	35,976	31,449	28,018	31,032	30,225	28,100	27,939	27,022
53 SUNY at Buffalo	35,838	27,538	19,262	17,096	14,185	13,294	11,714	9,425
54 Princeton University	35,738	29,646	21,584	15,590	15,135	13,130	11,990	10,099
55 Univ. of Colorado	34,549	31,974	29,132	29,689	24,057	26,353	20,770	12,392E
56 Univ of South Florida	34,397	31,555	30,743	4,363	3,641	3,350	2,959	2,635
57 Rockefeller University	32,753	31,136	28,777	27,478	29,112	28,640	28,375	24,959
58 Washington State Univ	32,476	29,958	27,591	26,277	25,311	25,396	24,315	21,296
59 Yale University	32,304	29,236	28,875	28,472	18,323	17,802	15,064	15,015
60 Duke University	32,054	27,728	21,631	15,952	12,462	10,232	8,232	2,417E
Total, 1st 60 insts.	3,894,277	3,421,646	3,143,624	2,736,075	2,379,949	2,112,547	1,911,235	1,670,501
61 University of Iowa	31,629	30,182	21,931	21,099	16,864	15,302	14,311	17,135
62 Washington University	31,590	28,986	25,662	21,827	19,183	19,855	15,007	12,441
63 Wayne State University	31,354	27,793	22,408	17,800	12,259	11,421	11,277	8,639
64 Kans St U - Ag & App Sci	31,351	28,880	27,317	27,739	26,812	24,832	24,862	23,878
65 University of Kansas	30,691	26,843	27,662	26,016	21,290I	16,564I	11,838I	7,112
66 Florida State University	30,348	26,652	25,004	22,329	18,059	17,786	11,957	12,492
67 Univ of Hawaii-Manoa	30,159	25,718	22,873	22,061	19,139	18,350	17,768	16,823
68 Univ Alabama Birmingham	30,098	22,661	18,158	14,064	8,137	8,024	5,802	5,558
69 University of Virginia	30,067	27,090	22,594	18,931	16,501	9,868	9,056	6,769
70 University of Pittsburgh	30,048	26,147	22,123	18,254	15,082	12,872	10,979	11,776
Total, 1st 70 insts.	4,201,612	3,692,598	3,379,356	2,946,195	2,553,275	2,267,421	2,044,092	1,793,124
71 Univ of Alaska Fairbanks	30,042	26,415E	25,909I	25,401I	24,893I	24,385I	23,877	20,197
72 SUNY at Stony Brook	29,729	25,393	14,548	18,948E	15,549	13,802	11,302	11,564
73 University of Cincinnati	29,233	24,493	21,760	16,610	17,785	17,397	15,121	8,513
74 University of New Mexico	29,036	22,867E	20,668E	14,046	12,541	9,819	9,414I	9,009
75 Univ of NC at Chapel Hill	28,817	24,316	21,225	20,829	20,212	9,530	7,508	8,476
76 UT SW Medical Ctr-Dallas	28,666	22,035	17,525	14,115	12,584	13,286	9,895	6,937
77 Utah State University	27,495	24,510	19,234	19,537	15,810	16,659	17,653	14,699
78 University of Miami	27,197	21,812	27,106	27,623	25,218	20,413	16,047	17,809
79 Univ of Med & Dent of N J	26,468	20,178	15,233	14,482	8,768	7,552	7,375	5,008
80 Columbia Univ Main Div	25,433	21,418	16,886	16,980	16,457	16,418	13,273	13,760
Total, 1st 80 insts.	4,483,728	3,926,035	3,579,450	3,134,766	2,723,092	2,416,682	2,175,557	1,909,096
81 Univ of Ark Fayetteville	23,887	19,911	19,739	19,954	16,402	15,212	14,625	19,826
82 Indiana University	23,459	21,028	21,130	19,136	17,269	15,080	14,449	13,895
83 New York University	23,308	23,126	22,798	23,688	23,329	19,390	18,684	17,636
84 University of Rochester	22,948	21,528	21,276	19,885	22,586	18,955	16,561	15,314
85 Texas Tech University	22,918	17,102	16,787	14,567	9,531	9,233I	8,935	7,916
86 Univ of South Carolina	22,825	16,181	15,121	14,246	11,960	8,496	6,371	5,688
87 West Virginia University	21,907	14,377	13,577	10,668	9,946	8,958	9,176	10,604
88 Arizona State University	21,893	20,504	24,754	20,039	16,397	13,017	12,006	3,671
89 SUNY Hlth Sci Ctr - Syrcs	21,605	17,044	14,759	12,884	13,206	11,776	10,486	9,244
90 University of Utah	21,521	18,406	13,968	9,050	8,790	8,810	8,849	8,746
Total, 1st 90 insts.	4,709,999	4,115,242	3,763,359	3,298,883	2,872,508	2,545,609	2,295,699	2,021,636
91 Tulane University	21,100	18,892	16,557	16,451	13,673	11,625	11,219	8,593
92 Univ of Cal Irvine	20,314	17,206	13,553	11,651	9,686	7,094	5,809	5,222
93 Temple University	20,250	20,804	17,661	14,037	8,270	6,921	6,065	5,962
94 University of Delaware	20,111	18,315	18,019	16,220	12,979	10,532	9,497	8,335
95 Rensselaer Polytech Inst	20,042	18,191	10,969	8,237	7,456	7,345	11,030	8,536
96 Univ of Central Florida	19,838	7,831	6,870I	5,909E	4,611	4,808I	5,006	3,673
97 University of Idaho	19,672	19,108	15,350	14,081	6,804	6,572	5,957	5,145
98 CUNY Mt Sinai Sch of Med	19,623	16,875	15,113	14,027	13,753	9,862	7,974	8,301
99 University of Chicago	18,970	17,574	15,990	14,722	12,979	13,012	13,329	11,418
100 U of Houston	18,326	12,651	13,338	12,373	6,766	5,935	6,100	7,273
Total, 1st 100 insts.	4,908,245	4,282,689	3,906,779	3,426,591	2,969,485	2,629,315	2,377,685	2,094,094

See footnotes at end of table.

Table B-29. Non-Federal R&D expenditures at universities and colleges: fiscal years 1982-89--Continued

[Dollars in thousands]

Institution ranking	Total							
	1989	1988	1987	1986	1985	1984	1983	1982
101 Emory University	18,216	17,228	22,191	18,296	4,570	4,626	4,121	3,408
102 Colorado State University	17,779	14,769	13,658	12,767	15,469	16,397	16,251	16,680
103 Case Western Reserve Univ	17,536	18,225	17,270	10,498E	9,416	7,880	7,728	9,082
104 U Tex Hlth Sci Ctr Houstn	17,360	15,687	10,431	9,960	7,543	5,794	4,952	3,661
105 Montana State University	17,187	14,517	14,366I	14,215	12,643	14,470	12,587	8,417
106 Southern Ill U-Carbondale	16,786	13,494	12,609	13,170	12,703	10,864	6,311	5,444
107 Yeshiva University	16,272	16,560	14,005	13,338	10,862	7,399	7,710	7,476
108 Georgetown University	16,246	14,117	11,504	9,360	10,991	9,561	8,255	6,884
109 Lehigh University	16,079	16,792	15,214	13,212	11,175	8,885	8,080	7,232
110 SUNY Col of Env Sci & For	15,338	11,248	10,481	9,870I	9,259	7,988I	6,720I	5,452I
Total, 1st 110 insts.	5,077,044	4,435,326	4,048,508	3,551,277	3,074,116	2,723,179	2,460,400	2,167,830
111 New Mexico State Univ	15,270	17,520	20,768	18,523	16,963	12,487	10,829	8,584
112 Univ of P R-Mayaguez	15,229	14,212	15,759	14,545I	13,333I	12,121I	10,909I	9,697I
113 Syracuse University	15,176	11,266	12,361	11,490	11,528	8,143	7,661	9,619
114 N Mex Inst Mining & Tech	15,106	14,865	14,786	9,666	7,318I	4,969	3,951I	2,935
115 California Inst of Tech	14,564	13,780	15,479	15,068	9,005	7,019	6,484	4,666
116 Unif Serv Univ of Hlth Sc	14,356	3,378	0	100	83	0	0	0
117 Univ of Rhode Island	14,279	12,973	8,080	7,872I	7,664	2,400	3,500I	4,600E
118 Univ of Missouri Rolla	14,233	15,153	10,451	10,121	6,318	5,451	4,746	4,230
119 U of VT & State Agr Coll	14,208	11,276	9,258	9,851	8,649	7,336	5,955	5,686
120 Rush University	14,159	13,274	8,519	6,778	4,644	5,773	4,985	3,756
Total, 1st 120 insts.	5,223,624	4,563,023	4,163,969	3,655,291	3,159,621	2,788,878	2,519,420	2,221,603
121 Medical College of Wis	13,519	13,428	14,667	7,756	7,587	6,867I	6,148I	5,429I
122 Virginia Commonwlth Univ	12,898	11,801	11,234	11,487	8,405	5,103	4,237E	3,533
123 U Tex Hlth Sci Ctr S Anto	12,528	12,145	12,007	10,386	10,148	9,361	8,738	6,022
124 The University of Alabama	11,853	9,460	8,223E	7,766	4,557	3,430I	2,304I	1,178E
125 Univ of Maine Orono	11,686	10,293	9,165	10,731	9,968	8,663	11,141	10,450
126 Drexel University	11,612	9,445	7,933	7,612	6,194	3,680	1,605	1,556
127 Brandeis University	11,516	8,023	6,954I	5,887I	4,820	5,179	2,499	3,167
128 Med Univ of So Carolina	11,470	9,993	8,861	8,981	4,590	3,758	2,718	2,235
129 Dartmouth College	11,230	9,834	9,363	7,251I	5,139I	3,027	3,617	2,515
130 U of MD Center For EES	11,222	10,140	9,400	7,515	2,747	2,324	2,220	2,179
Total, 1st 130 insts.	5,343,158	4,667,585	4,261,776	3,740,663	3,223,776	2,840,270	2,564,647	2,259,867
131 Univ of Cal Santa Cruz	11,108	9,900	10,790	7,166	7,326	5,938	4,564	3,854
132 Oregon Hlth Sciences Univ	10,935	11,269	10,683	8,177	6,857	5,573	5,548	7,735
133 Univ of Cal Santa Barbara	10,840	10,393	9,848	9,196	6,924	5,852	5,021	2,469
134 Woods Hole Ocngrphic Inst	10,548	9,300	5,822	5,009	4,572	5,689	6,073	4,723
135 U Tex Med Brnch Galveston	10,350	8,890	7,613	8,005I	8,397	7,920	8,583	7,640
136 N J Inst of Technology	10,320	7,242	9,571	7,639	3,213	1,391	1,151	1,235
137 Michigan Tech University	9,976	8,095	7,899	8,417	7,748	6,729	6,444	5,341
138 Boston University	9,923	9,587	8,893	7,768	5,878	4,996	4,515	3,229
139 Tufts University	9,653	12,272	9,349	8,093I	6,833I	5,573I	4,313I	3,053I
140 University of Wyoming	9,506	9,293	8,615	9,342	8,623	8,035	8,528	7,303
Total, 1st 140 insts.	5,446,317	4,763,826	4,350,859	3,819,475	3,290,147	2,897,966	2,619,387	2,306,449
141 Univ of Nevada - Reno	9,494	7,878	7,138	5,660I	4,180I	2,700E	7,969E	6,254
142 Univ of New Hampshire	9,126	8,747	6,932	7,150	8,096	7,014	6,408	5,604
143 SUNY at Albany	9,069	6,030	5,796	4,771	3,788	3,834	3,024	2,100
144 Vanderbilt University	9,067	15,945	12,246	10,446	9,471	8,111	6,433	5,344
145 Brown University	9,058	6,406	6,086	6,573	5,699	4,477	3,077	2,986
146 The Medical Col of Penna	9,028	6,257	3,632	3,486I	3,340I	3,194	1,006	2,397
147 SUNY Hlth Sci Ctr - Brkln	8,971	7,620	6,514	5,611I	4,708I	3,805	3,972	4,043
148 Univ of Missouri Sys Off	8,822	7,978	8,654	7,976	6,103	5,645	3,230	2,900
149 U of Neb Med Ctr at Omaha	8,719	6,919	5,249	5,116	3,654	3,907	3,239	2,673
150 Wake Forest University	8,645	7,542	4,824	4,208I	3,594I	2,980I	2,366I	1,752I
Total, 1st 150 insts.	5,536,316	4,845,148	4,417,930	3,880,472	3,342,780	2,943,633	2,660,111	2,342,502

See footnotes at end of table.

Table B-29. Non-Federal R&D expenditures at universities and colleges: fiscal years 1982-89--Continued

[Dollars in thousands]

Institution ranking	Total							
	1989	1988	1987	1986	1985	1984	1983	1982
151 University of Louisville	8,513	17,507	18,449	11,555	3,659	4,194	4,375	3,345
152 Univ Alabama Huntsville	8,185	6,630	3,610	2,842	2,018	1,490	1,165	927
153 Thomas Jefferson Univ	8,094	7,465	6,287	5,095	4,740	3,681	9,512	2,363
154 Univ of Wis-Milwaukee	7,981	7,762	7,140	6,740	5,857	4,994	4,468	4,394
155 Ohio University	7,739	7,323	5,720	5,198	3,516	2,911	2,836	3,260
156 Howard University	7,696I	6,910I	6,307	6,047E	1,077	1,936	2,288	2,066
157 Memphis State University	7,593	6,554	5,864	4,407	3,422	1,309	861	1,039
158 University of Akron	7,203	4,915	5,405	3,536	2,246	1,801	1,054	1,213
159 San Diego State Univ	7,076	6,682	5,587	3,927	2,818	1,521	1,722	1,547
160 Desert Research Institute	7,037	6,710	6,360	5,610	4,705	4,107	4,146	2,977
Total, 1st 160 insts.	5,613,433	4,923,606	4,488,659	3,935,429	3,376,838	2,971,577	2,692,538	2,365,633
161 Brigham Young University	6,759	5,307	6,321	5,958I	5,595	4,892	2,781	2,483
162 SUNY at Binghamton	6,356	6,194	5,768	4,981	3,936	3,028	3,003	1,635
163 Univ of North Texas	6,308	4,210	2,702	2,283	1,383	2,446	2,425	2,141
164 University of Mississippi	6,251	5,808	5,130	5,184	2,607	2,808	4,425E	4,398E
165 University of Notre Dame	6,176	4,266	4,010	3,597	3,477	2,766	1,616	1,389
166 Univ of Southwestern LA	5,999	4,229	4,428	4,177I	3,926	2,140I	355	821
167 Tenn Technological Univ	5,991	6,752	6,259	4,277I	2,295	1,024E	839E	793
168 Univ of Tex at Arlington	5,658	5,415	4,093	3,995	2,230	1,482	1,237	1,086
169 U of Arkansas Med Sci Cam	5,576	4,005	3,533	3,040	2,098	1,400	1,457	1,764
170 Creighton University	5,548	5,822	4,390I	2,958I	1,526	1,354	1,424	1,073
Total, 1st 170 insts.	5,674,055	4,975,614	4,535,293	3,975,879	3,405,911	2,994,917	2,712,100	2,383,216
171 Univ of Missouri Kan City	5,535	6,145	3,978	3,167	2,071	1,439	1,145	1,108
172 University of Dayton	5,334	5,382	4,735	3,847	3,733	3,340	2,946	2,386
173 Wright State University	5,329	4,539	3,565	5,435	5,307	4,302	3,051	2,496
174 University of Lowell	5,268	5,295	3,277	2,357	2,102	1,921	1,468	1,151I
175 Loyola Univ - Chicago	5,252	3,880	3,319	3,072	2,488	2,103	1,982	1,803
176 Rice University	5,223	4,551	4,143I	3,735I	3,327	2,985I	2,643I	2,301E
177 South Dakota State Univ	5,218	5,279	5,257	4,616	5,794	3,415	5,302	6,479
178 University of Oregon	5,190	3,994	4,032	3,284	3,022	2,891	2,954	2,241
179 George Washington Univ	5,064	3,634	4,178	3,348I	2,518	2,484	2,846	4,194
180 Colorado School of Mines	4,929	3,835	3,369	3,089	2,508	2,398	1,699	990
Total, 1st 180 insts.	5,726,397	5,022,148	4,575,146	4,011,829	3,438,781	3,022,195	2,738,136	2,408,365
181 Inst Paper Sci and Tech	4,849	4,733	4,308	4,341	4,063	4,023	4,644	4,637
182 North Dakota State Univ	4,825	4,428	16,638	15,567	14,825I	14,085I	13,345	13,673
183 Cleveland State Univ	4,810	5,287	4,878	2,880	2,290	1,297	1,100	1,148
184 Union College (NY)	4,715	4,923	3,329I	1,735I	141	158	138	474
185 Polytechnic University	4,521	2,817	2,671	2,008	1,620	1,642	1,163	1,205
186 Georgia State University	4,493	3,503	3,152	1,739	995	1,144	1,088	1,261
187 Univ of Texas at Dallas	4,453	3,827	2,827	1,918	1,891	2,224	2,515	1,883
188 Northern Illinois Univ	4,356	3,545	3,002	3,172	2,992I	2,810I	2,628	2,798
189 New York Inst Technology	3,998I	5,326	5,720	4,396I	3,074	2,701	2,509	2,353I
190 Medical Col of Georgia	3,971	2,304	2,348	1,992	1,621	1,319	1,066	836
Total, 1st 190 insts.	5,771,388	5,062,841	4,624,019	4,051,577	3,472,293	3,053,598	2,768,332	2,438,633
191 University of Montana	3,711	3,917E	3,760	3,141I	2,521E	2,365I	2,208	1,997
192 Florida A & M University	3,662	3,405	1,264	718I	173	1,443	2,136I	2,829
193 Univ of South Alabama	3,537	3,305	2,953	2,708	2,825	1,971	1,410I	848
194 Alfred University	3,425	3,544	2,209	1,580	1,066	822	904	896I
195 University of N Dakota	3,414	3,731	3,889	3,544I	3,196I	2,848I	2,500	2,856
196 Hahnemann University	3,349	1,733	2,270	1,600	3,290	2,314	1,102	1,018
197 Louisiana Tech University	3,230I	2,068	1,947	1,865I	1,782I	1,699I	1,616	1,113
198 Clarkson University	3,164	2,663	2,189	2,299	1,316	1,109	1,246	800
199 Southern Methodist Univ	3,119	1,499	933	1,130I	1,327	1,605	1,368	1,043
200 Northeastern University	3,101	2,928	2,036	1,724	1,908	1,783I	1,658I	1,533
Total, 1st 200 insts.	5,805,100	5,091,634	4,647,469	4,071,886	3,491,697	3,071,557	2,784,480	2,453,566
Total, all other sampled insts.	148,820	192,691	173,467	151,475	138,573	121,675	109,452	106,117
Estimated total non-sampled insts.	60,893	0	0	0	0	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-30. R&D expenditures at universities and colleges, by source of funds: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
Total, all institutions	14,987,279	8,972,466	1,239,110	983,574	2,709,591	1,082,538
1 Johns Hopkins Univ	648,395	590,184	2,336	11,013	26,511	18,351
2 Mass Inst of Technology	287,157	215,140	3,211	39,650	6,692	22,464
3 Cornell University	286,733	157,984	40,405	16,627	49,157	22,560
4 Stanford University	285,994	238,650	392	13,764	14,261	18,927
5 Univ of Wis-Madison	285,982	169,452	49,054	11,035	37,916	18,525
6 University of Michigan	280,905	174,875	2,533	22,023	61,626	19,848
7 University of Minnesota	258,614	132,880	42,542	12,389	43,713	27,090
8 Texas A & M University	250,706	93,584	65,179	21,204	63,053	7,686
9 Univ of Cal Los Angeles	227,828	159,002	3,479	7,548	32,975	24,824
10 University of Washington	221,712	182,453	3,795	19,135	13,181	3,148
Total, 1st 10 insts.	3,034,026	2,114,204	212,926	174,388	349,085	183,423
11 Pennsylvania State Univ	219,930	114,646	8,907	30,256	66,036	85
12 Univ of Cal San Francisco	219,446	159,906	8,770	6,226	24,269	20,275
13 Univ of Cal San Diego	216,991	171,479	3,288	6,824	19,057	16,343
14 Univ of Ill Urbana	210,590	114,398	25,838	15,785	47,336	7,233
15 Univ of Cal Berkeley	209,967	124,371	7,154	8,480	59,984	9,978
16 Harvard University	209,519	143,451	1,135I	10,461I	16,602I	37,870I
17 Univ of Texas at Austin	193,337	94,311	15,724	2,694	64,591	16,017
18 Univ of Cal Davis	180,297	72,718	10,322	8,039	79,601	9,617
19 Georgia Institute of Tech	174,664	98,048	1,093	21,346	54,177	0
20 University of Arizona	174,119	80,533	7,257	9,729	66,070	10,530
Total, 1st 20 insts.	5,042,886	3,288,065	302,414	294,228	846,808	311,371
21 Univ of Pennsylvania	173,744	123,810	2,730	9,582	8,984	28,638
22 Columbia Univ Main Div	172,145	146,712	2,461	5,408	4,189	13,375
23 Yale University	171,139	138,835	920	6,563	9,736	15,085
24 Ohio State University	162,690	75,484	32,949	9,449	26,640	18,168
25 Univ of Southern Cal	162,013	119,005	2,751	14,716	25,541	0
26 Univ of MD College Park	149,510	58,924	43,675I	12,940I	33,971I	0I
27 University of Georgia	145,953	42,797	36,081	4,877	60,675	1,523
28 Univ. of Colorado	143,694	109,145	1,692	6,728	12,175	13,954
29 Baylor Col of Medicine	134,681	69,336	5,565	7,263	15,513	37,004
30 Duke University	131,090	99,036	914	12,551	9,082	9,507
Total, 1st 30 insts.	6,589,545	4,271,149	432,152	384,305	1,053,314	448,625
31 N C State Univ at Raleigh	128,891	37,783	45,487	21,735	21,705	2,181
32 Washington University	128,419	96,829	1,532	13,500	8,114	8,444
33 University of Florida	125,770	60,731	10,180	10,579	38,144	6,136
34 Univ. Of Tennessee System	124,820	57,763	24,454	6,636	29,911	6,056
35 Rutgers the St Univ of NJ	124,574	35,896	26,369	6,087	50,305	5,917
36 Purdue University	124,323	63,979	17,641	11,451	25,954	5,298
37 University of Rochester	123,997	101,049	6,088	4,913	2,779	9,168
38 Louisiana State Univ	122,357	40,114	37,182	2,120	32,750	10,191
39 Univ of NC at Chapel Hill	122,097	93,280	13,655	579	14,428	155
40 Michigan State University	121,456	51,741	22,456	4,068	33,253	9,938
Total, 1st 40 insts.	7,836,249	4,910,314	637,196	465,973	1,310,657	512,109
41 Northwestern University	118,991	57,510	831	5,289	45,008	10,353
42 University of Pittsburgh	111,265	81,217	1,190	9,406	8,148	11,304
43 Univ of Massachusetts	110,644	56,505	10,337	11,480	27,383	4,939
44 University of Chicago	109,429	90,459	558	1,520	9,075	7,817
45 University of Connecticut	109,328	46,184	4,249	4,996	46,208	7,691
46 University of Iowa	105,900	74,271	1,121	10,301	18,102	2,105
47 New York University	104,451	81,143	798	4,066	7,727	10,717
48 VA Polytech Inst & St U	104,266	38,597	36,412	9,825	16,841	2,591
49 Iowa St U of Sci & Tech	103,174	28,895	23,718	4,408	42,644	3,509
50 Carnegie-Mellon Univ	101,635	65,079	9,277	18,976	1,844	6,459
Total, 1st 50 insts.	8,915,332	5,530,174	725,687	546,240	1,533,637	579,594

See footnotes at end of table.

Table B-30. R&D expenditures at universities and colleges, by source of funds: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
51 SUNY at Buffalo	100,291	64,453	2,699	1,759	16,827	14,553
52 California Inst of Tech	98,731	84,167	202	3,567	7,772	3,023
53 Univ Alabama Birmingham	98,302	68,204	2,120	6,602	8,445	12,931
54 Oregon State University	91,355	49,112	20,373	2,285	5,554	14,031
55 University of Miami	90,298	63,101	1,546	4,702	5,604	15,345
56 Case Western Reserve Univ	86,168	68,632	1,251	2,915	5,867	7,503
57 UT MD Anderson Cancer Ctr	85,903	28,992	0	0	35,200	21,711
58 Univ of Ill Chicago	85,237	43,288	3,629	5,333	25,064	7,923
59 University of Utah	83,340	61,819	3,511	2,700	11,259	4,051
60 Princeton University	82,914	47,176	1,018	5,640	21,760	7,320
Total, 1st 60 insts.	9,817,871	6,109,118	762,036	581,743	1,676,989	687,985
61 Indiana University	81,793	58,334	833	2,591	15,120	4,915
62 University of Virginia	81,281	51,214	7,006	5,768	10,196	7,097
63 UT SW Medical Ctr-Dallas	79,920	51,254	429	6,938	3,951	17,348
64 SUNY at Stony Brook	79,455	49,726	2,534	3,093	16,710	7,392
65 Univ of MD Balt Prof Sch	75,854	35,970	14,047	11,183	9,488	5,166
66 Woods Hole Ocngrphic Inst	74,881	64,333	341	916	1,257	8,034
67 Yeshiva University	74,496	58,224	0	0	8,022	8,250
68 Univ of Missouri Columbia	74,055	22,312	11,210	6,434	29,864	4,235
69 Rockefeller University	73,945	41,192	297	3,453	17,442	11,561
70 Univ of Hawaii-Manoa	70,733	40,574	24,759	799	3,686	915
Total, 1st 70 insts.	10,584,284	6,582,251	823,492	622,918	1,792,725	762,898
71 Utah State University	69,944	42,449	12,125	1,315	13,087	968
72 University of Cincinnati	69,831	40,598	2,910	4,160	14,019	8,144
73 University of Kentucky	69,532	27,010	6,840	5,819	25,318	4,545
74 Univ of Nebraska-Lincoln	68,281	25,803	22,006	2,675	15,931	1,866
75 Univ of Cal Irvine	66,806	46,492	1,483	4,582	7,706	6,543
76 Boston University	66,325	56,402	550	2,555	0	6,818
77 Vanderbilt University	65,218	56,151	576	2,759	2,081	3,651
78 Emory University	64,713	46,497	2,242	6,169	1,904	7,901
79 Colorado State University	64,351	46,572	7,992	2,432	4,708	2,647
80 Univ of South Florida	60,973	26,576	2,824	327	29,246	2,000
Total, 1st 80 insts.	11,250,258	6,996,801	883,040	655,711	1,906,725	807,981
81 New Mexico State Univ	60,930	45,660	7,070	6,242	1,727	231
82 Wayne State University	59,521	28,167	7,042	3,850	15,507	4,955
83 University of Kansas	57,111	26,420	2,674	2,809	23,640	1,568
84 CUNY Mt Sinai Sch of Med	56,856	37,233	957	3,732	5,767	9,167
85 Univ of Alaska Fairbanks	56,701	26,659	2,101	3,039	21,869	3,033
86 Clemson University	56,699	12,484	16,245	3,849	22,486	1,635
87 Florida State University	55,245	24,897	1,566	832	25,449	2,501
88 Washington State Univ	55,173	22,697	2,268	2,258	22,945	5,005
89 Univ of Med & Dent of N J	54,451	27,983	9,421	2,583	9,166	5,298
90 University of Oklahoma	53,956	17,020	3,052	1,991	24,226	7,667
Total, 1st 90 insts.	11,816,901	7,266,021	935,436	686,896	2,079,507	849,041
91 Auburn University	53,814	15,179	13,570	4,111	17,667	3,287
92 Mississippi State Univ	53,670	17,694	20,334	3,886	5,416	6,340
93 Oklahoma State University	53,655	14,116	1,853	1,645	34,613	1,428
94 Georgetown University	53,597	37,351	217	4,370	8,278	3,381
95 Univ of Cal Riverside	53,213	15,584	2,441	1,094	31,449	2,645
96 University of New Mexico	52,970	23,934	5,660	2,496	11,732	9,148
97 Tufts University	50,424	40,771	773	8,010E	847E	23E
98 Univ of Cal Santa Barbara	50,067	39,227	1,036	2,645	4,878	2,281
99 Kans St U - Ag & App Sci	47,302	15,951	21,133	1,790	6,384	2,044
100 U Tex Hlth Sci Ctr Houstn	46,860	29,500	5,668	3,266	1,694	6,732
Total, 1st 100 insts.	12,332,473	7,515,328	1,008,121	720,209	2,202,465	886,350

See footnotes at end of table.

Table B-30. R&D expenditures at universities and colleges, by source of funds: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
101 Temple University	45,482	25,232	1,426	2,544	12,552	3,728
102 Tulane University	45,195	24,095	1,482	5,577	10,211	3,830
103 Arizona State University	44,044	22,151	642	2,382	17,457	1,412
104 Brown University	43,564	34,506	104	4,291	2,698	1,965
105 Virginia Commonwlth Univ	42,976	30,078	1,437	3,604	6,195	1,662
106 U of VT & State Agr Coll	42,743	28,535	2,500	3,486	5,485	2,737
107 U Tex Hlth Sci Ctr S Anto	41,852	29,324	652	5,535	2,749	3,592
108 Univ of South Carolina	40,421	17,596	1,176	1,968	16,621	3,060
109 Rensselaer Polytech Inst	39,185	19,143	2,090	9,066	4,463	4,423
110 Dartmouth College	38,452	27,222	1,402	1,768	5,087	2,973
Total, 1st 110 insts.	12,756,387	7,773,210	1,021,032	760,430	2,285,983	915,732
111 West Virginia University	37,569	15,662	1,225	3,953	14,999	1,730
112 University of Delaware	37,194	17,083	2,603	4,073	11,125	2,310
113 Wake Forest University	37,156	28,511	215	4,859	1,414	2,157
114 Univ of Rhode Island	36,219E	21,940	3,172	2,014E	8,930E	163E
115 Syracuse University	35,543	20,367	1,786	3,937	6,787	2,666
116 Oregon Hlth Sciences Univ	35,097	24,162	12	706	5,816	4,401
117 Medical College of Wis	34,951	21,432	1,079	3,684	4,091	4,665
118 U of Houston	34,684	16,358	7,205	1,770	5,352	3,999
119 Texas Tech University	34,048	11,130	10,230	4,697	6,425	1,566
120 U Tex Med Brnch Galveston	33,502	23,152	3,609	1,847	67	4,827
Total, 1st 120 insts.	13,112,350	7,973,007	1,052,168	791,970	2,350,989	944,216
121 Univ of Ark Fayetteville	32,842	8,955	11,985	2,444	8,374	1,084
122 University of Dayton	31,984	26,650	425	4,164	711	34
123 University of Idaho	31,879	12,207	7,796	3,788	8,088	0
124 SUNY Hlth Sci Ctr - Syrcs	31,125	9,520	257	258	0	21,090
125 Univ of Central Florida	30,991	11,153	4,161	2,580	13,097	0
126 Brandeis University	30,596	19,080	333	0	5,205	5,978
127 George Washington Univ	30,284	25,220	136	1,100	1,649	2,179
128 Thomas Jefferson Univ	29,405	21,311	0	8,094	0	0
129 Univ of P R-Mayaguez	29,343	14,114	6,965	222	6,249	1,793
130 Unif Serv Univ of Hlth Sc	27,062	12,706	0	0	14,356	0
Total, 1st 130 insts.	13,417,861	8,133,923	1,084,226	814,620	2,408,718	976,374
131 Univ Alabama Huntsville	26,186	18,001	1,783	2,170	4,232	0
132 Lehigh University	26,004	9,925	2,996	7,596	4,200	1,287
133 Montana State University	25,968	8,781	7,138	2,902	7,147	0
134 SUNY at Albany	24,240	15,171	286	657	4,933	3,193
135 Univ of New Hampshire	23,720	14,594	1,244	1,183	4,246	2,453
136 Univ of Cal Santa Cruz	23,651	12,543	702	583	8,598	1,225
137 Southern Ill U-Carbondale	23,357	6,571	3,165	1,504	10,714	1,403
138 University of Wyoming	23,310	13,804	1,539	1,535	6,226	206
139 Med Univ of So Carolina	23,017	11,547	0	2,089	6,305E	3,076
140 University of Oregon	22,476	17,286	329	163	3,974	724
Total, 1st 140 insts.	13,659,790	8,262,146	1,103,408	835,002	2,469,293	989,941
141 N Mex Inst Mining & Tech	22,289	7,183	1,882	7,695	4,401	1,128
142 Rush University	21,741	7,582	5	3,714	7,112	3,328
143 Rice University	21,563	16,340	788	1,203	0	3,232
144 The Medical Col of Penna	20,542	11,514	3,976	0	0	5,052
145 SUNY Hlth Sci Ctr - Brkln	20,523	11,552	1,878	1,425	2,746	2,922
146 San Diego State Univ	20,124	13,048	1,284	2,303	3,092	397
147 Howard University	20,097I	12,401I	128I	1,356I	6,212I	0I
148 Univ of Maine Orono	19,974	8,288	584	4,002	6,567	533
149 University of Notre Dame	19,385	13,209	141	4,204	1,831	0
150 The University of Alabama	18,395	6,542	504	2,082	9,029	238
Total, 1st 150 insts.	13,864,423	8,369,805	1,114,578	862,986	2,510,283	1,006,771

See footnotes at end of table.

Table B-30. R&D expenditures at universities and colleges, by source of funds: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
151 Univ of Nevada - Reno	18,141	8,647	873	1,019	6,849	753
152 Drexel University	17,983	6,371	1,307	4,202	6,103	0
153 Univ of Missouri Rolla	17,692	3,459	582	2,385	10,085	1,181
154 University of N Dakota	17,518	14,104	94	1,264	1,739	317
155 U of Neb Med Ctr at Omaha	17,291	8,572	753	1,194	4,593	2,179
156 SUNY Col of Env Sci & For	17,221	1,883	661	1,716	12,289	672
157 University of Mississippi	17,092	10,841	57	1,085	3,890	1,219
158 Desert Research Institute	16,005	8,968	933	3,079	2,463	562
159 US Naval Postgrad School	15,306	15,170	65	0	71	0
160 Michigan Tech University	15,186	5,210	2,838	3,584	3,554	0
Total, 1st 160 insts.	14,033,858	8,453,030	1,122,741	882,514	2,561,919	1,013,654
161 University of Louisville	14,466	5,953	273	1,697	5,275	1,268
162 St Louis University	14,251	12,272	70	913	100	896
163 Florida A & M University	14,171	10,509	3,063	393	206	0
164 U of MD Center For EES	13,741	2,519	2,847	47	7,364	964
165 Univ of Wis-Milwaukee	13,428	5,447	5,239	628	1,251	863
166 Northeastern University	13,302	10,201	214	953	268	1,666
167 New York Medical College	12,958	10,021	117	878	0	1,942
168 CUNY City College	11,724	9,005	496	667	0	1,556
169 Brigham Young University	11,544	4,785	1,547	1,488	3,476	248
170 Ohio University	11,461	3,722	3,355	393	3,798	193
Total, 1st 170 insts.	14,164,904	8,527,464	1,139,962	890,571	2,583,657	1,023,250
171 N J Inst of Technology	11,402	1,082	7,170	1,125	586	1,439
172 Medical Col of Georgia	11,363	7,392	245	1,810	701	1,215
173 Polytechnic University	11,345	6,824	1,191	2,821	309	200
174 Loyola Univ - Chicago	11,303	6,051	206	1,305	1,759	1,982
175 Univ of Texas at Dallas	11,265	6,812	1,018	756	986	1,693
176 University of Lowell	11,242	5,974	1,500	2,849	163	756
177 Hahnemann University	11,158	7,809	88	326	978	1,957
178 Wright State University	11,043	5,714	1,106	315	2,355	1,553
179 U of Arkansas Med Sci Cam	10,834	5,258	201	1,679	1,147	2,549
180 Univ of South Alabama	10,503	6,966	362E	1,277	1,898	0
Total, 1st 180 insts.	14,276,362	8,587,346	1,153,049	904,834	2,594,539	1,036,594
181 North Dakota State Univ	10,116	5,291	824	1,257	2,058	686
182 Memphis State University	9,892	2,299	2,779	209	4,298	307
183 Albany Medical College	9,827	7,259	2	1,222	1,283	61
184 University of Akron	9,728	2,525	2,376	2,591	2,236	0
185 Univ of Missouri Sys Off	9,500	678	233	519	7,921	149
186 San Jose State University	9,488	7,220	980	609	357	322
187 Colorado School of Mines	9,364	4,435	813	3,793	323	0
188 Southern Methodist Univ	9,363	6,244	513	597	1,207	802
189 SUNY at Binghamton	9,270	2,914	1,356	1,126	2,957	917
190 Univ of North Texas	9,121	2,813	3,678	1,004	213	1,413
Total, 1st 190 insts.	14,372,031	8,629,024	1,166,603	917,761	2,617,392	1,041,251
191 Old Dominion U Res Fdn	9,107	6,175	2,579	353	0	0
192 University of Denver	8,938	6,825	182	1,428	503	0
193 Oregon Graduate Institute	8,825	6,582	7	1,573	645	18
194 South Dakota State Univ	8,472	3,254	4,409	251	389	169
195 Eastern VA Medical School	8,125	6,887	22	0	0	1,216
196 Creighton University	7,934	2,386	167	5,229	152	0
197 Univ of Missouri Kan City	7,926	2,391	760	1,330	2,834	611
198 College of William & Mary	7,633	5,349	1,000	438	846	0
199 Cleveland State Univ	7,570	2,760	1,941	421	2,390	58
200 Clarkson University	7,523	4,359	933	1,282	949	0
Total, 1st 200 insts.	14,454,084	8,675,992	1,178,603	930,066	2,626,100	1,043,323
Total, all other sampled insts.	414,966	239,138	40,306	39,975	66,664	28,883
Estimated total non-sampled insts.	118,229	57,336	20,201	13,533	16,827	10,332

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-31. R&D expenditures at public universities and colleges, by source of funds: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institu-tional funds	Other
Total, all institutions	9,819,044	5,182,605	1,113,199	624,591	2,254,690	643,959
1 Univ of Wis-Madison	285,982	169,452	49,054	11,035	37,916	18,525
2 University of Michigan	280,905	174,875	2,533	22,023	61,626	19,848
3 University of Minnesota	258,614	132,880	42,542	12,389	43,713	27,090
4 Texas A & M University	250,706	93,584	65,179	21,204	63,053	7,686
5 Univ of Cal Los Angeles	227,828	159,002	3,479	7,548	32,975	24,824
6 University of Washington	221,712	182,453	3,795	19,135	13,181	3,148
7 Pennsylvania State Univ	219,930	114,646	8,907	30,256	66,036	85
8 Univ of Cal San Francisco	219,446	159,906	8,770	6,226	24,269	20,275
9 Univ of Cal San Diego	216,991	171,479	3,288	6,824	19,057	16,343
10 Univ of Ill Urbana	210,590	114,398	25,838	15,785	47,336	7,233
Total, 1st 10 insts.	2,392,704	1,472,675	213,385	152,425	409,162	145,057
11 Univ of Cal Berkeley	209,967	124,371	7,154	8,480	59,984	9,978
12 Univ of Texas at Austin	193,337	94,311	15,724	2,694	64,591	15,017
13 Univ of Cal Davis	180,297	72,718	10,322	8,039	79,601	9,617
14 Georgia Institute of Tech	174,664	98,048	1,093	21,346	54,177	0
15 University of Arizona	174,119	80,533	7,257	9,729	66,070	10,530
16 Ohio State University	162,690	75,484	32,949	9,449	26,640	18,168
17 Univ of MD College Park	149,510	58,924	43,675I	12,940I	33,971I	0I
18 University of Georgia	145,953	42,797	36,081	4,877	60,675	1,523
19 Univ. of Colorado	143,694	109,145	1,692	6,728	12,175	13,954
20 N C State Univ at Raleigh	128,891	37,783	45,487	21,735	21,705	2,181
Total, 1st 20 insts.	4,055,826	2,266,789	414,819	258,442	888,751	227,025
21 University of Florida	125,770	60,731	10,180	10,579	38,144	6,136
22 Univ. Of Tennessee System	124,820	57,763	24,454	6,636	29,911	6,056
23 Rutgers the St Univ of NJ	124,574	35,896	26,369	6,087	50,305	5,917
24 Purdue University	124,323	63,979	17,641	11,451	25,954	5,298
25 Louisiana State Univ	122,357	40,114	37,182	2,120	32,750	10,191
26 Univ of NC at Chapel Hill	122,097	93,280	13,655	579	14,428	155
27 Michigan State University	121,456	51,741	22,456	4,068	33,253	9,938
28 University of Pittsburgh	111,265	81,217	1,190	9,406	8,148	11,304
29 Univ of Massachusetts	110,644	56,505	10,337	11,480	27,383	4,939
30 University of Connecticut	109,328	46,184	4,249	4,996	46,208	7,691
Total, 1st 30 insts.	5,252,460	2,854,199	582,532	325,844	1,195,235	294,650
31 University of Iowa	105,900	74,271	1,121	10,301	18,102	2,105
32 VA Polytech Inst & St U	104,266	38,597	36,412	9,825	16,841	2,591
33 Iowa St U of Sci & Tech	103,174	28,895	23,718	4,408	42,644	3,509
34 SUNY at Buffalo	100,291	64,453	2,699	1,759	16,827	14,553
35 Univ Alabama Birmingham	98,302	68,204	2,120	6,602	8,445	12,931
36 Oregon State University	91,355	49,112	20,373	2,285	5,554	14,031
37 UT MD Anderson Cancer Ctr	85,903	28,992	0	0	35,200	21,711
38 Univ of Ill Chicago	85,237	43,288	3,629	5,333	25,064	7,923
39 University of Utah	83,340	61,819	3,511	2,700	11,259	4,051
40 Indiana University	81,793	58,334	833	2,591	15,120	4,915
Total, 1st 40 insts.	6,192,021	3,370,164	676,948	371,648	1,390,291	382,970
41 University of Virginia	81,281	51,214	7,006	5,768	10,196	7,097
42 UT SW Medical Ctr-Dallas	79,920	51,254	429	6,938	3,951	17,348
43 SUNY at Stony Brook	79,455	49,726	2,534	3,093	16,710	7,392
44 Univ of MD Balt Prof Sch	75,854	35,970	14,047	11,183	9,488	5,166
45 Univ of Missouri Columbia	74,055	22,312	11,210	6,434	29,864	4,235
46 Univ of Hawaii-Manoa	70,733	40,574	24,759	799	3,686	915
47 Utah State University	69,944	42,449	12,125	1,315	13,087	968
48 University of Cincinnati	69,831	40,598	2,910	4,160	14,019	8,144
49 University of Kentucky	69,532	27,010	6,840	5,819	25,318	4,545
50 Univ of Nebraska-Lincoln	68,281	25,803	22,006	2,675	15,931	1,866
Total, 1st 50 insts.	6,930,907	3,757,074	780,814	419,832	1,532,541	440,646

See footnotes at end of table.

Table B-31. R&D expenditures at public universities and colleges, by source of funds: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institu-tional funds	Other
51 Univ of Cal Irvine	66,806	46,492	1,483	4,582	7,706	6,543
52 Colorado State University	64,351	46,572	7,992	2,432	4,708	2,647
53 Univ of South Florida	60,973	26,576	2,824	327	29,246	2,000
54 New Mexico State Univ	60,930	45,660	7,070	6,242	1,727	231
55 Wayne State University	59,521	28,167	7,042	3,850	15,507	4,955
56 University of Kansas	57,111	26,420	2,674	2,809	23,640	1,568
57 Univ of Alaska Fairbanks	56,701	26,659	2,101	3,039	21,869	3,033
58 Clemson University	56,699	12,484	16,245	3,849	22,486	1,635
59 Florida State University	55,245	24,897	1,566	832	25,449	2,501
60 Washington State Univ	55,173	22,697	2,268	2,258	22,945	5,005
Total, 1st 60 insts.	7,524,417	4,063,698	832,079	450,052	1,707,824	470,764
61 Univ of Med & Dent of N J	54,451	27,983	9,421	2,583	9,166	5,298
62 University of Oklahoma	53,956	17,020	3,052	1,991	24,226	7,667
63 Auburn University	53,814	15,179	13,570	4,111	17,667	3,287
64 Mississippi State Univ	53,670	17,694	20,334	3,886	5,416	6,340
65 Oklahoma State University	53,655	14,116	1,853	1,645	34,613	1,428
66 Univ of Cal Riverside	53,213	15,584	2,441	1,094	31,449	2,645
67 University of New Mexico	52,970	23,934	5,660	2,496	11,732	9,148
68 Univ of Cal Santa Barbara	50,067	39,227	1,036	2,645	4,878	2,281
69 Kans St U - Ag & App Sci	47,302	15,951	21,133	1,790	6,384	2,044
70 U Tex Hlth Sci Ctr Houstn	46,860	29,500	5,668	3,266	1,694	6,732
Total, 1st 70 insts.	8,044,375	4,279,886	916,247	475,559	1,855,049	517,634
71 Temple University	45,482	25,232	1,426	2,544	12,552	3,728
72 Arizona State University	44,044	22,151	642	2,382	17,457	1,412
73 Virginia Commonwlth Univ	42,976	30,078	1,437	3,604	6,195	1,662
74 U of VT & State Agr Coll	42,743	28,535	2,500	3,486	5,485	2,737
75 U Tex Hlth Sci Ctr S Anto	41,852	29,324	652	5,535	2,749	3,592
76 Univ of South Carolina	40,421	17,596	1,176	1,968	16,621	3,060
77 West Virginia University	37,569	15,662	1,225	3,953	14,999	1,730
78 University of Delaware	37,194	17,083	2,603	4,073	11,125	2,310
79 Univ of Rhode Island	36,219E	21,940	3,172	2,014E	8,930E	163E
80 Oregon Hlth Sciences Univ	35,097	24,162	12	706	5,816	4,401
Total, 1st 80 insts.	8,447,972	4,511,649	931,092	505,824	1,956,978	542,429
81 U of Houston	34,684	16,358	7,205	1,770	5,352	3,999
82 Texas Tech University	34,048	11,130	10,230	4,697	6,425	1,566
83 U Tex Med Brnch Galveston	33,502	23,152	3,609	1,847	67	4,827
84 Univ of Ark Fayetteville	32,842	8,955	11,985	2,444	8,374	1,084
85 University of Idaho	31,879	12,207	7,796	3,788	8,088	0
86 SUNY Hlth Sci Ctr - Syrcs	31,125	9,520	257	258	0	21,090
87 Univ of Central Florida	30,991	11,153	4,161	2,580	13,097	0
88 Univ of P R-Mayaguez	29,343	14,114	6,965	222	6,249	1,793
89 Unif Serv Univ of Hlth Sc	27,062	12,706	0	0	14,356	0
90 Univ Alabama Huntsville	26,186	18,001	1,783	2,170	4,232	0
Total, 1st 90 insts.	8,759,634	4,648,945	985,083	525,600	2,023,218	576,788
91 Montana State University	25,968	8,781	7,138	2,902	7,147	0
92 SUNY at Albany	24,240	15,171	286	657	4,933	3,193
93 Univ of New Hampshire	23,720	14,594	1,244	1,183	4,246	2,453
94 Univ of Cal Santa Cruz	23,651	12,543	702	583	8,598	1,225
95 Southern Ill U-Carbondale	23,357	6,571	3,165	1,504	10,714	1,403
96 University of Wyoming	23,310	13,804	1,539	1,535	6,226	206
97 Med Univ of So Carolina	23,017	11,547	0	2,089	6,305E	3,076
98 University of Oregon	22,476	17,286	329	163	3,974	724
99 N Mex Inst Mining & Tech	22,289	7,183	1,882	7,695	4,401	1,128
100 SUNY Hlth Sci Ctr - Brkln	20,523	11,552	1,878	1,425	2,746	2,922
Total, 1st 100 insts.	8,992,185	4,767,977	1,003,246	545,336	2,082,508	593,118

See footnotes at end of table.

Table B-31. R&D expenditures at public universities and colleges, by source of funds: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
101 San Diego State Univ	20,124	13,048	1,284	2,303	3,092	397
102 Univ of Maine Orono	19,974	8,288	584	4,002	6,567	533
103 The University of Alabama	18,395	6,542	504	2,082	9,029	238
104 Univ of Nevada - Reno	18,141	8,647	873	1,019	6,849	753
105 Univ of Missouri Rolla	17,692	3,459	582	2,385	10,085	1,181
106 University of N Dakota	17,518	14,104	94	1,264	1,739	317
107 U of Neb Med Ctr at Omaha	17,291	8,572	753	1,194	4,593	2,179
108 SUNY Col of Env Sci & For	17,221	1,883	661	1,716	12,289	672
109 University of Mississippi	17,092	10,841	57	1,085	3,890	1,219
110 Desert Research Institute	16,005	8,968	933	3,079	2,463	562
Total, 1st 110 insts.	9,171,638	4,852,329	1,009,571	565,465	2,143,104	601,169
111 US Naval Postgrad School	15,306	15,170	65	0	71	0
112 Michigan Tech University	15,186	5,210	2,838	3,584	3,554	0
113 University of Louisville	14,466	5,953	273	1,697	5,275	1,268
114 Florida A & M University	14,171	10,509	3,063	393	206	0
115 U of MD Center For EES	13,741	2,519	2,847	47	7,364	964
116 Univ of Wis-Milwaukee	13,428	5,447	5,239	628	1,251	863
117 CUNY City College	11,724	9,005	496	667	0	1,556
118 Ohio University	11,461	3,722	3,355	393	3,798	193
119 N J Inst of Technology	11,402	1,082	7,170	1,125	586	1,439
120 Medical Col of Georgia	11,363	7,392	245	1,810	701	1,215
Total, 1st 120 insts.	9,303,886	4,918,338	1,035,162	575,809	2,165,910	608,667
121 Univ of Texas at Dallas	11,265	6,812	1,018	756	986	1,693
122 University of Lowell	11,242	5,974	1,500	2,849	163	756
123 Wright State University	11,043	5,714	1,106	315	2,355	1,553
124 U of Arkansas Med Sci Cam	10,834	5,258	201	1,679	1,147	2,549
125 Univ of South Alabama	10,503	6,966	362E	1,277	1,898	0
126 North Dakota State Univ	10,116	5,291	824	1,257	2,058	686
127 Memphis State University	9,892	2,299	2,779	209	4,298	307
128 University of Akron	9,728	2,525	2,376	2,591	2,236	0
129 Univ of Missouri Sys Off	9,500	678	233	519	7,921	149
130 San Jose State University	9,488	7,220	980	609	357	322
Total, 1st 130 insts.	9,407,497	4,967,075	1,046,541	587,870	2,189,329	616,682
131 Colorado School of Mines	9,364	4,435	813	3,793	323	0
132 SUNY at Binghamton	9,270	2,914	1,356	1,126	2,957	917
133 Univ of North Texas	9,121	2,813	3,678	1,004	213	1,413
134 Old Dominion U Res Fdn	9,107	6,175	2,579	353	0	0
135 South Dakota State Univ	8,472	3,254	4,409	251	389	169
136 Univ of Missouri Kan City	7,926	2,391	760	1,330	2,834	611
137 College of William & Mary	7,633	5,349	1,000	438	846	0
138 Cleveland State Univ	7,570	2,760	1,941	421	2,390	58
139 Northern Illinois Univ	7,304	2,948	259	1,656	2,441	0
140 Univ of Tex at Arlington	7,064	1,406	1,321	2,407	1,656	274
Total, 1st 140 insts.	9,490,328	5,001,520	1,064,657	600,649	2,203,378	620,124
141 Georgia State University	7,000	2,507	445	349	2,876	823
142 Univ of Southwestern LA	6,817	818	1,645	10	3,642	702
143 Med Col of Ohio at Toledo	6,809	5,855	255	144	0	555
144 NC Ag & Tech State Univ	6,706	5,752	362	0	0	592
145 Tenn Technological Univ	6,641	650	4,545	836	422	188
146 Univ of P R-Med Sci Cmpus	6,528	5,235	0	0	1,231	62
147 CUNY Hunter College	6,526	4,065	49	259	1,782	371
148 University of Montana	6,482	2,771	781	340	2,387	203
149 Alabama A & M University	6,272	4,801	0	0	1,471	0
150 Kent State University	5,534	2,613	606	266	1,814	235
Total, 1st 150 insts.	9,555,643	5,036,587	1,073,345	602,853	2,219,003	623,855
Total, all other sampled insts.	173,628	102,660	22,713	12,427	23,787	12,041
Estimated total non-sampled insts.	89,773	43,358	17,141	9,311	11,900	8,063

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-32. R&D expenditures at private universities and colleges, by source of funds: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
Total, all institutions	5,168,235	3,789,860	125,910	358,983	454,901	438,580
1 Johns Hopkins Univ	648,395	590,184	2,336	11,013	26,511	18,351
2 Mass Inst of Technology	287,157	215,140	3,211	39,650	6,692	22,464
3 Cornell University	286,733	157,984	40,405	16,627	49,157	22,560
4 Stanford University	285,994	238,650	392	13,764	14,261	18,927
5 Harvard University	209,519	143,451	1,135I	10,461I	16,602I	37,870I
6 Univ of Pennsylvania	173,744	123,810	2,730	9,582	8,984	28,638
7 Columbia Univ Main Div	172,145	146,712	2,461	5,408	4,189	13,375
8 Yale University	171,139	138,835	920	6,563	9,736	15,085
9 Univ of Southern Cal	162,013	119,005	2,751	14,716	25,541	0
10 Baylor Col of Medicine	134,681	69,336	5,565	7,263	15,513	37,004
Total, 1st 10 insts.	2,531,520	1,943,107	61,906	135,047	177,186	214,274
11 Duke University	131,090	99,036	914	12,551	9,082	9,507
12 Washington University	128,419	96,829	1,532	13,500	8,114	8,444
13 University of Rochester	123,997	101,049	6,088	4,913	2,779	9,168
14 Northwestern University	118,991	57,510	831	5,289	45,008	10,353
15 University of Chicago	109,429	90,459	558	1,520	9,075	7,817
16 New York University	104,451	81,143	798	4,066	7,727	10,717
17 Carnegie-Mellon Univ	101,635	65,079	9,277	18,976	1,844	6,459
18 California Inst of Tech	98,731	84,167	202	3,567	7,772	3,023
19 University of Miami	90,298	63,101	1,546	4,702	5,604	15,345
20 Case Western Reserve Univ	86,168	68,632	1,251	2,915	5,867	7,503
Total, 1st 20 insts.	3,624,729	2,750,112	84,903	207,046	280,058	302,610
21 Princeton University	82,914	47,176	1,018	5,640	21,760	7,320
22 Woods Hole Ocngrphic Inst	74,881	64,333	341	916	1,257	8,034
23 Yeshiva University	74,496	58,224	0	0	8,022	8,250
24 Rockefeller University	73,945	41,192	297	3,453	17,442	11,561
25 Boston University	66,325	56,402	550	2,555	0	6,818
26 Vanderbilt University	65,218	56,151	576	2,759	2,081	3,651
27 Emory University	64,713	46,497	2,242	6,169	1,904	7,901
28 CUNY Mt Sinai Sch of Med	56,856	37,233	957	3,732	5,767	9,167
29 Georgetown University	53,597	37,351	217	4,370	8,278	3,381
30 Tufts University	50,424	40,771	773	8,010E	847E	23E
Total, 1st 30 insts.	4,288,098	3,235,442	91,874	244,650	347,416	368,716
31 Tulane University	45,195	24,095	1,482	5,577	10,211	3,830
32 Brown University	43,564	34,506	104	4,291	2,698	1,965
33 Rensselaer Polytech Inst	39,185	19,143	2,090	9,066	4,463	4,423
34 Dartmouth College	38,452	27,222	1,402	1,768	5,087	2,973
35 Wake Forest University	37,156	28,511	215	4,859	1,414	2,157
36 Syracuse University	35,543	20,367	1,786	3,937	6,787	2,666
37 Medical College of Wis	34,951	21,432	1,079	3,684	4,091	4,665
38 University of Dayton	31,984	26,650	425	4,164	711	34
39 Brandeis University	30,596	19,080	333	0	5,205	5,978
40 George Washington Univ	30,284	25,220	136	1,100	1,649	2,179
Total, 1st 40 insts.	4,655,008	3,481,668	100,926	283,096	389,732	399,586
41 Thomas Jefferson Univ	29,405	21,311	0	8,094	0	0
42 Lehigh University	26,004	9,925	2,996	7,596	4,200	1,287
43 Rush University	21,741	7,582	5	3,714	7,112	3,328
44 Rice University	21,563	16,340	788	1,203	0	3,232
45 The Medical Col of Penna	20,542	11,514	3,976	0	0	5,052
46 Howard University	20,097I	12,401I	128I	1,356I	6,212I	0I
47 University of Notre Dame	19,385	13,209	141	4,204	1,831	0
48 Drexel University	17,983	6,371	1,307	4,202	6,103	0
49 St Louis University	14,251	12,272	70	913	100	896
50 Northeastern University	13,302	10,201	214	953	268	1,666
Total, 1st 50 insts.	4,859,281	3,602,794	110,551	315,331	415,558	415,047

See footnotes at end of table.

Table B-32. R&D expenditures at private universities and colleges, by source of funds: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Federal Govt.	State & local govts.	Industry	Institutional funds	Other
51 New York Medical College	12,958	10,021	117	878	0	1,942
52 Brigham Young University	11,544	4,785	1,547	1,488	3,476	248
53 Polytechnic University	11,345	6,824	1,191	2,821	309	200
54 Loyola Univ - Chicago	11,303	6,051	206	1,305	1,759	1,982
55 Hahnemann University	11,158	7,809	88	326	978	1,957
56 Albany Medical College	9,827	7,259	2	1,222	1,283	61
57 Southern Methodist Univ	9,363	6,244	513	597	1,207	802
58 University of Denver	8,938	6,825	182	1,428	503	0
59 Oregon Graduate Institute	8,825	6,582	7	1,573	645	18
60 Eastern VA Medical School	8,125	6,887	22	0	0	1,216
Total, 1st 60 insts.	4,962,667	3,672,081	114,426	326,969	425,718	423,473
61 Creighton University	7,934	2,386	167	5,229	152	0
62 Clarkson University	7,523	4,359	933	1,282	949	0
63 Illinois Inst of Tech	6,864	3,947	178	2,089	650	0
64 Meharry Medical College	6,564	6,397	0	30	115	22
65 Catholic Univ of America	6,554	6,077	0	477	0	0
66 Inst Paper Sci and Tech	6,231	1,382	26	591	3,559	673
67 Boston College	6,152	5,824	7	129	0	192
68 Tuskegee University	5,348	4,967	0	226	111	44
69 Loma Linda University	5,248	2,294	41	1,964	748	201
70 Union College (NY)	5,193	478	196	290	0	4,229
Total, 1st 70 insts.	5,026,278	3,710,192	115,974	339,276	432,002	428,834
71 Stevens Institute of Tech	4,973	2,532	901	600	850	90
72 U Hlth Sci/Chcgo Med Sch	4,535	3,269	0	268	546	452
73 Morehouse School of Med	4,320	4,238	0	0	82	0
74 Worcester Poly Institute	4,208	2,411	114	1,683	0	0
75 New York Inst Technology	3,998	0	0I	180I	3,818I	0I
76 Wesleyan University	3,943	2,193	261	71	1,055	363
77 Alfred University	3,874	449	1,043	1,475	866	41
78 American University	3,765	3,480	23	110	94	58
79 Texas Col of Osteo Med	3,630	2,518	180	0	0	932
80 Florida Inst of Tech	3,531	898	1,352	567	502	212
Total, 1st 80 insts.	5,067,055	3,732,180	119,848	344,230	439,815	430,982
81 Fairleigh Dickinson Univ	3,356	2,355	271	379	131	220
82 University of Tulsa	3,329	926	43	2,020	245	95
83 Mercer University	3,043	1,812	9	193	1,029	0
84 Chas R Drew U of Med & Sc	2,898	2,898	0	0	0	0
85 Fordham University	2,648	2,063	171	0	70	344
86 Marquette University	2,454	1,487	0	921	46	0
87 Hampton University	2,168	2,168	0	0	0	0
88 Occidental College	2,011	442	886	293	197	193
89 Cal Sch Prof Psych-Fresno	1,922	1,566	0I	0I	356I	0I
90 Baylor University	1,841	346	0	129	1,035	331
Total, 1st 90 insts.	5,092,725	3,748,243	121,228	348,165	442,924	432,165
91 Smith College	1,774	903	0	0	264	607
92 Chicago Col of Osteo Med	1,651	314	0	523	814	0
93 Amherst College	1,557	1,047	0	186	324	0
94 Cal Sch Prof Psych-L A	1,551	1,383	0	0	168	0
95 Villanova University	1,440	885	72	172	311	0
96 Seton Hall University	1,417I	1,236I	0I	181I	0I	0I
97 Santa Clara University	1,396	672	0	128	583	13
98 Wentworth Inst of Tech	1,383	1,383	0	0	0	0
99 Institute of Textile Tech	1,311	0	0	1,311	0	0
100 Xavier University of LA	1,294	1,294	0	0	0	0
Total, 1st 100 insts.	5,107,499	3,757,360	121,300	350,666	445,388	432,785
Total, all other sampled insts.	32,280	18,523	1,551	4,095	4,586	3,525
Estimated total non-sampled insts.	28,456	13,977	3,059	4,222	4,927	2,270

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-33. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1982-89

[Dollars in thousands]

Institution ranking	1989	1988	1987	1986	1985	1984	1983	1982
Total, all institutions	983,574	869,913	789,209	699,130	559,202	474,731	388,091	337,071
1 Mass Inst of Technology	39,650	33,256	35,064	34,764	32,007	26,458	17,944	17,195
2 Pennsylvania State Univ	30,256	24,068	20,114	16,905	15,715	12,995	12,445	10,581
3 University of Michigan	22,023	14,782	14,451	12,481	11,677	7,559	5,984	7,408
4 N C State Univ at Raleigh	21,735	18,580	11,748	10,452	8,249	3,026	3,246	2,712I
5 Georgia Institute of Tech	21,346	21,567	23,628	21,944	18,730	18,131	13,255	11,359
6 Texas A & M University	21,204	18,534	13,398	7,944	11,731	5,601	6,483	4,933
7 University of Washington	19,135	16,580	18,564	16,493	8,887	6,801	6,176	5,140
8 Carnegie-Mellon Univ	18,976	17,092	16,130	17,591	11,780	12,603	7,922	4,844
9 Cornell University	16,627	15,806	17,169	14,256	12,526	13,229	9,206	7,495
10 Univ of Ill Urbana	15,785	13,686	11,414	8,831	7,506	4,922	3,448	1,598
Total, 1st 10 insts.	226,737	193,951	181,680	161,661	138,808	111,325	86,109	73,265
11 Univ of Southern Cal	14,716	11,805	9,999	6,376	5,361	4,800	2,012	5,223
12 Stanford University	13,764	11,628	10,979	8,833	8,044	9,043	6,430	8,969
13 Washington University	13,500	12,839	12,016	11,352	9,617	8,339	5,601	2,388
14 Univ of MD College Park	12,940I	11,451I	10,149E	8,124E	7,374E	7,174E	6,963E	4,964E
15 Duke University	12,551	12,379	8,085	7,300	5,193	4,622	3,166	510I
16 University of Minnesota	12,389	10,670	11,056	11,157	8,135	8,053	5,962	4,720
17 Univ of Massachusetts	11,480	9,470	8,560	7,427	5,752	4,729	3,681	1,961E
18 Purdue University	11,451	10,325	9,579	8,776	9,583	9,232	9,269	7,405
19 Univ of MD Balt Prof Sch	11,183	8,017	7,652	6,827	4,414I	3,402I	2,386I	1,373I
20 Univ of Wis-Madison	11,035	9,556	8,586	8,007	7,217	5,451	4,502	3,446
Total, 1st 20 insts.	351,746	302,091	278,341	245,840	209,498	176,170	136,081	114,224
21 Johns Hopkins Univ	11,013	9,247	7,755	3,538	3,076	2,500E	2,000E	1,700E
22 University of Florida	10,579	8,529	9,404	7,902	8,254	5,000	4,345	3,650
23 Harvard University	10,461I	9,093I	7,778E	6,723I	5,410E	4,883E	4,695E	4,550E
24 University of Iowa	10,301	5,527	2,615	1,706	1,556	1,788	1,490	1,600
25 VA Polytech Inst & St U	9,825	9,058	7,010	6,463	5,924	5,818	5,988	6,515
26 University of Arizona	9,729	12,245	11,638	11,158	9,402	7,837	7,956	8,554
27 Univ of Pennsylvania	9,582	6,230	7,483	7,299	3,685	3,013	1,821	2,592
28 Ohio State University	9,449	10,910	9,278	7,826	7,140	6,559	6,431	4,260
29 University of Pittsburgh	9,406	8,738	6,547	5,428	4,069	2,813	2,919	1,445
30 Rensselaer Polytech Inst	9,066	9,014	8,006	5,813I	5,262	4,785	3,589	2,848
Total, 1st 30 insts.	451,157	390,682	355,855	309,696	263,276	221,166	177,315	151,938
31 Univ of Cal Berkeley 1/	8,480	8,267	6,580	6,143	0	0	0	0
32 Thomas Jefferson Univ	8,094	7,465	6,287	5,095	4,740	3,681	4,290	2,363
33 Univ of Cal Davis 1/	8,039	6,975	5,324	4,510	0	0	0	0
34 Tufts University	8,010E	8,375	6,314E	982I	828I	676I	524I	370I
35 N Mex Inst Mining & Tech	7,695	6,853	5,418	3,335	2,538I	1,739	1,262I	784
36 Lehigh University	7,596	7,479	6,731	5,514	4,286	1,865	1,488	1,294
37 Univ of Cal Los Angeles 1/	7,548	8,492	14,360	12,659	0	0	0	0
38 Baylor Col of Medicine	7,263	5,329	4,879	3,772	4,241	3,932	4,726	3,054
39 UT SW Medical Ctr-Dallas	6,938	5,915	5,566	4,295	3,967	3,620	2,792	1,915
40 Univ of Cal San Diego 1/	6,824	5,055	5,902	5,995	0	0	0	0
Total, 1st 40 insts.	527,644	460,887	423,216	361,996	283,876	236,679	192,397	161,718
41 Univ. of Colorado	6,728	5,234	4,502	3,567	2,234	1,809	1,542	2,860E
42 Univ. Of Tennessee System	6,636	6,312	4,870	3,755	3,521	2,835	2,447	0
43 Univ Alabama Birmingham	6,602	6,153	4,544	4,508	3,705	3,117	2,265	1,509
44 Yale University	6,563	5,649	5,563	1,790	1,729	1,637	1,316	905
45 Univ of Missouri Columbia	6,434	4,252	4,206	4,562	3,402	2,128	1,492	983
46 New Mexico State Univ	6,242	7,844	9,847	6,985	6,237E	5,121E	0	0
47 Univ of Cal San Fran 1/	6,226	5,127	4,008	4,119	0	0	0	0
48 Emory University	6,169	4,701	3,350	2,427	2,395	2,395	1,957	1,271
49 Rutgers the St Univ of NJ	6,087	4,498	3,087	2,594	2,108	1,817	1,694	1,264
50 University of Kentucky	5,819	4,191	6,312	8,173	4,768	4,378	3,007	3,337
Total, 1st 50 insts.	591,150	514,848	473,505	404,476	313,975	261,916	208,117	173,847

See footnotes at end of table.

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Table B-33. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1982-89--Continued

[Dollars in thousands]

Institution ranking	1989	1988	1987	1986	1985	1984	1983	1982
51 University of Virginia	5,768	4,733	3,260	2,941	2,347	2,399	2,342	1,877
52 Princeton University	5,640	4,487	4,122	2,989	1,184	958	805	693
53 Tulane University	5,577	5,418	4,945	4,689	4,072	3,372	2,410	2,516
54 U Tex Hlth Sci Ctr S Anto	5,535	4,908	4,404	4,302	3,458	2,497	2,237	1,495
55 Columbia Univ Main Div	5,408	4,841	3,915	4,086	4,027	349	336	459
56 Univ of Ill Chicago	5,333	2,664	1,728	1,490	909	731	1,022	929I
57 Northwestern University	5,289	3,532	3,101	2,256	1,690	1,088	1,365	895
58 Creighton University	5,229	5,589	4,143I	2,793I	1,345	1,105	886	650
59 University of Connecticut	4,996	4,310	3,729	4,090	4,572	3,537	1,743	1,570
60 University of Rochester	4,913	4,705	6,267	6,714	6,896	7,134	6,481	4,561
Total, 1st 60 insts.	644,838	560,035	513,119	440,826	344,475	285,086	227,744	189,492
61 University of Georgia	4,877	5,659	4,982	4,360	3,729	4,356	4,486	3,059
62 Wake Forest University	4,859	4,183	2,402	1,768I	1,509I	1,254I	993I	735I
63 University of Miami	4,702	4,907	7,300	8,897	7,892	5,600	4,384	4,605
64 Texas Tech University	4,697	4,513	4,123	4,213	3,650	2,663I	1,910	1,953
65 Univ of Cal Irvine 1/	4,582	5,181	4,722	4,295	0	0	0	0
66 Iowa St U of Sci & Tech	4,408	3,961	3,597	3,043	3,131	2,925	2,957	2,106
67 Georgetown University	4,370	2,972	2,536	1,906	2,561	2,531	1,234	1,570
68 Brown University	4,291	5,086	4,250	3,848	3,000	2,227	1,527	2,236
69 University of Notre Dame	4,204	3,114	2,824	2,743	2,502	1,874	1,237	1,076
70 Drexel University	4,202	2,928	2,468	2,940	2,237	1,562	611	542
Total, 1st 70 insts.	690,030	602,539	552,323	478,839	374,686	310,078	247,083	207,374
71 University of Dayton	4,164	4,013	3,335	2,786	2,556	2,226	2,108	1,793
72 University of Cincinnati	4,160	3,449	2,299	1,655	1,880	1,388	1,262	1,133
73 Auburn University	4,111	2,615	3,112	2,805	2,699	2,604	1,904	1,560
74 University of Delaware	4,073	3,558	3,659	3,551	2,809	2,752	3,075	2,445
75 Michigan State University	4,068	3,615	3,137	2,969	2,686	2,446	619	2,200
76 New York University	4,066	3,677	3,036	4,292	3,742	3,240	2,649	2,952
77 Univ of Maine Orono	4,002	2,823	2,051	2,856	1,559	2,320	1,404	1,088
78 West Virginia University	3,953	754	862	899	588	673	594	704
79 Syracuse University	3,937	2,595	3 975	7,397	2,298	1,120	943	1,481
80 Mississippi State Univ	3,886	3,430	2,823	2,081	1,606	1,250	1,229	1,536
Total, 1st 80 insts.	730,450	633,068	580,612	510,130	397,109	330,097	262,870	224,266
81 Wayne State University	3,850	2,897	2,761	1,717	1,241	884	894	1,678
82 Clemson University	3,849	3,791	3,105	2,963	1,800	2,009	2,223	2,319
83 Colorado School of Mines	3,793	2,647	1,995	2,516	2,160	2,356	1,609	900
84 University of Idaho	3,788	3,339	2,630	2,670	2,793	2,567	2,260	1,622
85 CUNY Mt Sinai Sch of Med	3,732	2,982	2,870	950	1,426	1,795	1,145	849
86 Rush University	3,714	2,139	1,320	1,447	738	682	753	540
87 Medical College of Wis	3,684	3,243	2,018	1,422	1,131	1,043I	933I	824I
88 Virginia Commonwlth Univ	3,604	3,283	3,192	2,195	2,019	1,412	350E	299
89 Michigan Tech University	3,584	2,901	2,740	2,490	2,511	1,901	1,453	1,673
90 California Inst of Tech	3,567	3,273	3,436	3,806	2,678	3,798	2,445	2,025
Total, 1st 90 insts.	767,615	663,563	606,679	532,306	415,606	348,544	276,935	236,995
91 U of VT & State Agr Coll	3,486	3,139	2,877	3,331	2,613	2,130	1,665	1,369
92 Rockefeller University	3,453	3,764	3,476	3,321	2,861	2,817	2,661	1,740
93 U Tex Hlth Sci Ctr Houstn	3,266	3,385	3,494	3,661	1,217	883	707	848
94 SUNY at Stony Brook	3,093	1,624	1,269	1,382	1,412	1,159	898	511
95 Desert Research Institute	3,079	2,868	3,289	2,972	2,402	2,585	2,375	2,196
96 Univ of Alaska Fairbanks	3,039	2,672E	3,024I	2,936I	2,878I	2,819I	3,143	2,882
97 Case Western Reserve Univ	2,915	3,975	3,433	2,992	2,408	1,802	1,720	1,896
98 Montana State University	2,902	2,770	2,454I	2,138	1,628	1,818	1,054	860
99 University of Lowell	2,849	2,626	1,201	816	1,059	1,519	1,360	881I
100 Polytechnic University	2,821	1,405	1,245	500	408	904	0	0
Total, 1st 100 insts.	798,518	691,791	632,441	556,355	434,492	366,980	292,518	250,178

See footnotes at end of table.

Table B-33. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1982-89--Continued

[Dollars in thousands]

Institution ranking	1989	1988	1987	1986	1985	1984	1983	1982
101 University of Kansas	2,809	2,934	3,259	2,527	1,426I	1,109I	795I	0
102 Vanderbilt University	2,759	7,938	5,313	4,356	3,376	3,040	2,403	2,146
103 University of Utah	2,700	2,248	2,268	1,819	1,706	1,659	1,888	1,432
104 Univ of Texas at Austin	2,694	3,175	3,161	2,677	2,136	1,932	1,750	1,624
105 Univ of Nebraska-Lincoln	2,675	2,204	1,938	1,985	1,721	1,545	1,203	1,037
106 Univ of Cal Santa Barb 1/	2,645	2,108	1,970	2,097	0	0	0	0
107 Indiana University	2,591	2,658	4,597	3,325	2,718	2,361	2,402	1,463
108 University of Akron	2,591	2,422	2,426	2,256	1,056	846	322	411
109 Univ of Med & Dent of N J	2,583	1,983	1,421	1,322E	855E	715E	674E	437E
110 Univ of Central Florida	2,580	1,864	1,990I	1,940I	1,514	1,273I	1,032	152
Total, 1st 110 insts.	825,145	721,325	660,784	580,659	451,000	381,460	304,987	258,880
111 Boston University	2,555	2,379	2,276	2,076	1,994	906	812	965
112 Temple University	2,544	3,699	0	0	274	195	308	379
113 University of New Mexico	2,496	1,140	4,858	4,450	3,875	3,523	3,084I	2,645
114 Univ of Ark Fayetteville	2,444	3,112	2,353	2,585	2,093	1,391	1,514	1,402
115 Colorado State University	2,432	1,525	1,178	1,423	6,467	6,750	6,426	5,130
116 Univ of Tex at Arlington	2,407	1,858	1,138	776	739	820	837	689
117 Univ of Missouri Rolla	2,385	3,280	1,153	1,338	1,416	1,095	1,281	843
118 Arizona State University	2,382	2,832	5,575	3,061	2,441	1,588	1,373	750
119 San Diego State Univ	2,303	1,815	1,353	1,012	1,055	326	254	154
120 Oregon State University	2,285	1,944	1,890	4,650I	4,245	3,519	3,424	2,782
Total, 1st 120 insts.	849,378	744,909	682,558	602,030	475,599	401,573	324,300	274,619
121 Washington State Univ	2,258	3,335	2,619	2,261	1,465	1,581	1,517	2,865
122 Univ Alabama Huntsville	2,170	1,369	992	914	649	597	[illegible]	335
123 Louisiana State Univ	2,120	2,348	1,481	998	1,372	3,247	[illegible]	2,434
124 Illinois Inst of Tech	2,089	1,465	1,002	954	870	294	[illegible]	308
125 Med Univ of So Carolina	2,089	1,849	1,548	1,379	1,143	854	414	465
126 The University of Alabama	2,082	1,448	1,354	1,800	852	505I	339I	76E
127 University of Tulsa	2,020	2,093	1,808I	1,457I	1,169E	1,274E	702	717
128 Univ of Rhode Island	2,014E	3,544	1,130	752I	375	0	0I	0
129 University of Oklahoma	1,991	1,950	2,026	2,513	2,328	2,075	2,260	1,642
130 Univ of South Carolina	1,968	3,053	1,531	1,566	1,442	798	585	565
Total, 1st 130 insts.	870,179	767,363	698,049	616,624	487,264	412,798	333,378	284,026
131 Loma Linda University	1,964	1,390	420	323I	350	210I	156I	16E
132 U Tex Med Brnch Galveston	1,847	1,781	1,146	1,274I	917	604	500	647
133 Medical Col of Georgia	1,810	1,078	1,011	955	705	544	375	321
134 Kans St U - Ag & App Sci	1,790	2,031	1,515	779	721	848	1,120	1,147
135 U of Houston	1,770	1,940	1,959	2,851	1,925	1,500	1,239	1,472
136 Dartmouth College	1,768	1,273	1,024	930I	659I	566	325	141
137 SUNY at Buffalo	1,759	1,178	779	234	243	0	0	0
138 SUNY Col of Env Sci & For	1,716	1,493	1,153	991I	932	826I	767I	623I
139 University of Louisville	1,697	400	403	0	0	0	322	222
140 Worcester Poly Institute	1,683	2,028	1,815	2,090I	2,126I	2,163I	2,437	2,234
Total, 1st 140 insts.	887,983	781,955	709,274	627,051	495,842	420,059	340,619	290,849
141 U of Arkansas Med Sci Cam	1,679	753	476	483	279	202	232	318
142 Northern Illinois Univ	1,656	1,152	890	824	624I	587I	386	210
143 Oklahoma State University	1,645	3,761	3,170	3,054	2,972	2,631	2,546I	2,100
144 East Carolina University	1,584	1,044	1,029	856	777I	698	423	341
145 Oregon Graduate Institute	1,573	1,225	1,722	1,746I	1,710I	1,732	1,456I	1,200I
146 University of Wyoming	1,535	1,800	1,216	1,779	1,821	1,734	1,740	1,312
147 University of Chicago	1,520	1,814	1,812	1,203	1,044	962	941	950
148 Southern Ill U-Carbondale	1,504	1,117	1,191	1,595	1,811	1,575	2,519	2,690
149 Brigham Young University	1,488	1,438	2,150	2,075I	2,001	1,787	1,207	1,328
150 Alfred University	1,475	1,432	1,323	984	496	424	579	433I
Total, 1st 150 insts.	903,642	797,491	724,253	641,650	509,377	432,391	352,648	301,731

See footnotes at end of table.

Table B-33. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1982-89--Continued

[Dollars in thousands]

Institution ranking	1989	1988	1987	1986	1985	1984	1983	1982
151 University of Denver	1,428	1,638	1,027	1,260	1,444E	1,628E	1,811E	1,995
152 SUNY Hlth Sci Ctr - Brkln	1,425	1,054	897	653I	547I	304	284	332
153 Howard University	1,356I	1,218I	1,112	1,026	1,034	38	23	33
154 Univ of Missouri Kan City	1,330	1,776	1,062	820	547	223	157	142
155 Utah State University	1,315	1,529	1,316	1,440	1,365	1,306	1,141	703
156 Institute of Textile Tech	1,311	1,678	1,238	1,172I	1,109I	1,046I	983I	920I
157 Loyola Univ - Chicago	1,305	475	407	639	523	618	661	348
158 Clarkson University	1,282	978	1,113	1,288	848	708	755	502
159 Univ of South Alabama	1,277	1,118	914	896	1,010	948	838I	728
160 University of N Dakota	1,264	1,496E	1,583	1,180I	1,062I	947I	696E	795
Total, 1st 160 insts.	916,935	810,451	734,922	652,024	518,866	440,157	359,997	308,229
161 North Dakota State Univ	1,257	1,246	1,995	1,892	1,234I	1,105I	377	535
162 Albany Medical College	1,222	1,448	1,661	1,130I	1,099I	1,071I	1,043I	509
163 Rice University	1,203	1,195	1,182I	1,066I	1,054	773I	683I	557E
164 U of Neb Med Ctr at Omaha	1,194	792	583	558	549	679	498	368
165 Univ of New Hampshire	1,183	1,124	1,057	648	895	497	248	332
166 University of Toledo	1,152	703	481I	260	100	33	102	147
167 SUNY at Binghamton	1,126	909	836	705	524	618	556	367
168 N J Inst of Technology	1,125	1,001	1,026	680	297	105	100	133
169 University of Detroit	1,125	754	616I	573I	501I	461I	369	373I
170 George Washington Univ	1,100	990	359	399I	440	316	198	193
Total, 1st 170 insts.	928,622	820,613	744,718	659,935	525,559	445,815	364,171	311,743
171 Cal Poly St U San Luis Ob	1,097	711	608I	540I	471I	405I	336I	231
172 Univ of Cal Riverside 1/	1,094	1,692	1,955	2,041	0	0	0	0
173 University of Mississippi	1,085	998	766	441	890	763	546	466
174 Univ of Nevada - Reno	1,019	695	687	425I	313I	134I	395E	386
175 Univ of North Texas	1,004	783	714	353	347	443	341	494
176 Northeastern University	953	730	561	525	615	589I	549I	523
177 Marquette University	921	668	435	314	352	250	256	125
178 Woods Hole Ocngrphic Inst	916	1,300	667	574	646	572	1,126	692
179 St Louis University	913	651	203I	210I	215I	221I	0	0I
180 New York Medical College	878	2,287	800	656	586	204	469	0
Total, 1st 180 insts.	938,502	831,128	752,114	666,014	529,994	449,396	368,189	314,660
181 Tenn Technological Univ	836	274	371	309I	248	224	199	76
182 Florida State University	832	571	280	217	191	72	98	140
183 Univ of Hawaii-Manoa	799	378	261	508	250	380	723	260
184 Univ of Texas at Dallas	756	785	658	421	59	105	188	221
185 Oakland University	751	472	630	394I	332I	273I	36	22
186 Oregon Hlth Sciences Univ	706	1,094	243	458	104	422	379	1,624
187 Western Michigan Univ	678I	603	710	519	428	24	60E	31I
188 CUNY City College	667	607	1,397	935I	596	270	209	247
189 Univ of N C at Charlotte	658	350	236I	208I	182I	154I	126I	99I
190 SUNY at Albany	657	399	271	300	144	50	63	38
Total, 1st 190 insts.	945,842	836,661	757,171	670,283	532,528	451,370	370,270	317,418
191 Univ of Wis-Milwaukee	628	691	407	517	529	324	262	196
192 Florida Atlantic Univ	626	1,023	999	742	389E	354	0	0
193 San Jose State University	609	595	878I	779I	679I	581I	480I	772I
194 Stevens Institute of Tech	600	1,966	1,852	1,786I	1,322I	1,256	0	1,220
195 Southern Methodist Univ	597	78	178	115I	126	220	110	72
196 Inst Paper Sci and Tech	591	830	546	564	466	457	562	499
197 Wichita State University	588	683	659	492	345	210	173	256
198 Univ of Cal Santa Cruz 1/	583	386	460	218	0	0	0	0
199 Univ of NC at Chapel Hill	579	409	509	1,138	1,177	1,047	594	815
200 Florida Inst of Tech	567	518	216	415	193	128	35	38
Total, 1st 200 insts.	951,810	843,840	763,875	677,049	537,754	455,947	372,486	321,356
Total, all other sampled insts.	18,231	26,073	25,334	22,081	21,448	18,784	15,605	15,715
Estimated total non-sampled insts.	13,533	0	0	0	0	0	0	0

1/ Data for the University of California (UC) in fiscal year 1986 and subsequent years include industry-supported R&D expenditures for the first time. Industry data are not available for fiscal years prior to 1986.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-34. R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Engi- neering	Physical sciences	Environ- mental sciences	Math & computer sciences	Life sciences	Psy- chology	Social sciences	Other sciences
Total, all institutions	14,987,279	2,387,593	1,643,377	982,936	681,977	8,079,851	237,945	636,372	337,227
1 Johns Hopkins Univ	648,395	209,748	85,843	43,970	104,792	180,099	1,193	10,258	12,492
2 Mass Inst of Technology	287,157	116,367	89,915	11,614	13,603	34,322	7,573	5,109	8,654
3 Cornell University	286,733	38,648	43,228	5,504	21,519	163,640	2,875	10,414	905
4 Stanford University	285,994	78,311	50,733	5,186	15,652	129,352	4,081	2,679	0
5 Univ of Wis-Madison	285,982	34,697	27,197	20,869	8,531	165,141	8,843	19,571	1,133
6 University of Michigan	280,905	46,866	15,747	16,142	8,137	143,184	5,601	36,860	8,368
7 University of Minnesota	258,614	27,709	14,423	7,198	6,669	187,347	6,283	8,455	530
8 Texas A & M University	250,706	52,541	19,721	52,220	3,992	102,993	860	10,912	7,467
9 Univ of Cal Los Angeles	227,828	22,975	21,764	11,272	6,631	144,933	6,694	13,559	0
10 University of Washington	221,712	16,738	13,381	19,198	8,256	136,184	4,553	4,286	19,116
Total, 1st 10 insts.	3,034,026	644,600	381,952	193,173	197,782	1,387,195	48,556	122,103	58,665
11 Pennsylvania State Univ	219,930	97,276	14,687	12,537	2,860	74,665	2,756	7,766	7,383
12 Univ of Cal San Francisco	219,446	0	0	0	0	219,446	0	0	0
13 Univ of Cal San Diego	216,991	6,373	24,540	75,600	7,074	99,224	2,410	1,770	0
14 Univ of Ill Urbana	210,590	58,003	23,307	20,702	16,963	48,881	5,420	7,332	29,982
15 Univ of Cal Berkeley	209,967	47,393	44,998	3,024	4,422	83,990	5,933	16,595	3,612
16 Harvard University	209,519	1,134	25,713	6,692	3,396	127,771	2,123	40,675	2,015
17 Univ of Texas at Austin	193,337	50,944	35,845	20,919	11,426	18,367	2,204	13,882	39,750
18 Univ of Cal Davis	180,297	7,124	7,346	739	713	162,623	163	1,589	0
19 Georgia Institute of Tech	174,664	116,109	20,753	9,918	18,568	2,238	2,891	4,105	82
20 University of Arizona	174,119	12,583	49,968	22,612	4,341	75,080	301	7,394	1,840
Total, 1st 20 insts.	5,042,886	1,041,539	629,109	365,916	267,545	2,299,480	72,757	223,211	143,329
21 Univ of Pennsylvania	173,744	9,981	15,004	66	8,165	117,746	1,570	16,267	4,945
22 Columbia Univ Main Div	172,145	15,429	13,718	29,982	5,046	100,063	1,338	6,569	0
23 Yale University	171,139	6,052	15,059	2,153	9,344	132,778	2,952	2,801	0
24 Ohio State University	162,690	29,821	12,222	4,491	2,207	91,583	338	13,197	8,831
25 Univ of Southern Cal	162,013	24,525	6,107	7,305	33,146	82,906	5,098	2,926	0
26 Univ of MD College Park	149,510	41,624	46,904	6,557	16,010	19,742	4,773	13,900	0
27 University of Georgia	145,953	3,479	6,239	6,111	5,209	103,667	3,668	17,580	0
28 Univ. of Colorado	143,694	15,613	21,121	22,511	3,950	72,878	4,957	2,629	35
29 Baylor Col of Medicine	134,681	0	0	0	0	134,681	0	0	0
30 Duke University	131,090	5,407	7,864	3,316	2,221	102,646	1,326	8,310	0
Total, 1st 30 insts.	6,589,545	1,193,470	773,347	448,408	352,843	3,258,170	98,777	307,390	157,140
31 N C State Univ at Raleigh	128,891	34,421	5,488	5,473	4,514	76,476	142	2,377	0
32 Washington University	128,419	2,919	6,475	1,966	4,327	111,638	754	340	0
33 University of Florida	125,770	27,162	11,653	3,944	3,400	73,051	2,674	2,188	1,698
34 Univ. Of Tennessee System	124,820	29,852	10,720	1,455	4,394	70,417	660	5,387	1,935
35 Rutgers the St Univ of NJ	124,574	19,463	16,480	5,439	9,278	54,452	5,202	11,285	2,975
36 Purdue University	124,323	32,873	13,665	2,020	5,144	60,119	1,727	6,553	2,222
37 University of Rochester	123,997	23,768	11,307	363	2,853	80,283	4,767	539	117
38 Louisiana State Univ	122,357	13,216	8,781	14,329	3,492	73,805	1,141	5,757	1,836
39 Univ of NC at Chapel Hill	122,097	0	6,508	4,700	8,055	91,710	808	10,316	0
40 Michigan State University	121,456	11,494	21,121	1,159	760	73,509	1,739	5,105	6,569
Total, 1st 40 insts.	7,836,249	1,388,638	885,545	489,256	399,060	4,023,630	118,391	357,237	174,492
41 Northwestern University	118,991	14,728	11,884	1,308	1,445	66,589	792	1,227	21,018
42 University of Pittsburgh	111,265	6,201	10,952	219	1,414	84,583	1,151	6,006	739
43 Univ of Massachusetts	110,644	8,814	12,633	6,062	9,718	66,542	3,008	3,441	426
44 University of Chicago	109,429	0	24,329	3,994	2,543	74,047	967	3,549	0
45 University of Connecticut	109,328	20,039	3,975	6,569	2,097	69,134	3,017	3,199	1,298
46 University of Iowa	105,900	8,710	13,114	417	1,986	78,000	1,269	2,404	0
47 New York University	104,451	0	3,056	177	13,003	76,883	3,703	5,334	2,295
48 VA Polytech Inst & St U	104,266	36,123	8,378	3,497	3,198	47,777	705	4,588	0
49 Iowa St U of Sci & Tech	103,174	25,225	4,276	600	8,603	56,107	617	5,564	2,182
50 Carnegie-Mellon Univ	101,635	25,982	7,169	1,676	47,868	11,008	4,007	3,074	851
Total, 1st 50 insts.	8,915,332	1,534,460	985,311	513,775	490,935	4,654,300	137,627	395,623	203,301

See footnotes at end of table.

Table B-34. R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 SUNY at Buffalo	100,291	19,630	6,413	357	2,608	65,589	2,314	2,849	531
52 California Inst of Tech	98,731	16,670	39,377	14,391	4,081	23,012	0	593	607
53 Univ Alabama Birmingham	98,302	4,133	351	0	1,194	91,942	623	59	0
54 Oregon State University	91,355	5,130	4,670	20,097	1,213	51,912	10	2,299	6,024
55 University of Miami	90,298	1,796	876	16,132	315	67,952	1,245	1,531	451
56 Case Western Reserve Univ	86,168	18,089	10,164	344	265	54,525	186	2,595	0
57 UT MD Anderson Cancer Ctr	85,903	0	3,053	0	1,917	80,933	0	0	0
58 Univ of Ill Chicago	85,237	5,939	7,005	1,126	1,657	59,969	418	2,292	6,831
59 University of Utah	83,340	15,959	8,633	3,477	3,990	49,974	687	620	0
60 Princeton University	82,914	20,957	20,191	6,388	7,336	15,272	4,528	8,242	0
Total, 1st 60 insts.	9,817,871	1,642,763	1,086,044	576,087	515,511	5,215,380	147,638	416,703	217,745
61 Indiana University	81,793	314	22,059	631	2,627	48,378	2,795	3,075	1,914
62 University of Virginia	81,281	14,382	10,528	4,588	3,972	42,708	1,866	2,660	577
63 UT SW Medical Ctr-Dallas	79,920	0	0	0	0	79,920	0	0	0
64 SUNY at Stony Brook	79,455	3,443	18,224	10,021	3,212	38,408	1,001	2,594	2,552
65 Univ of MD Balt Prof Sch	75,854	0	0	0	0	75,854	0	0	0
66 Woods Hole Ocngrphic Inst	74,881	9,445	0	65,436	0	0	0	0	0
67 Yeshiva University	74,496	0	0	0	0	74,486	0	10	0
68 Univ of Missouri Columbia	74,055	5,653	1,713	1,128	328	57,910	1,461	4,230	1,632
69 Rockefeller University	73,945	0	9,518	0	1,056	63,371	0	0	0
70 Univ of Hawaii-Manoa	70,733	1,344	17,090	23,005	172	20,602	341	2,764	5,415
Total, 1st 70 insts.	10,584,284	1,677,344	1,165,176	680,896	526,878	5,717,017	155,102	432,036	229,835
71 Utah State University	69,944	23,852	5,662	11,246	276	21,746	254	1,229	5,679
72 University of Cincinnati	69,831	12,911	5,643	148	563	48,512	280	244	1,530
73 University of Kentucky	69,532	11,336	1,886	147	640	49,192	156	936	5,239
74 Univ of Nebraska-Lincoln	68,281	7,253	4,861	2,314	1,103	49,093	602	2,651	404
75 Univ of Cal Irvine	66,806	4,244	11,425	113	3,027	44,441	0	3,556	0
76 Boston University	66,325	2,794	6,453	145	974	50,721	403	1,460	3,375
77 Vanderbilt University	65,218	5,798	7,067	142	526	48,996	1,507	1,182	0
78 Emory University	64,713	0	4,038	11	291	58,197	254	1,922	0
79 Colorado State University	64,351	13,853	4,832	7,813	915	30,975	1,243	4,687	33
80 Univ of South Florida	60,973	20,480	2,249	3,955	946	31,204	1,438	701	0
Total, 1st 80 insts.	11,250,258	1,779,865	1,219,292	706,930	536,139	6,150,094	161,239	450,604	246,095
81 New Mexico State Univ	60,930	30,060	2,292	1,788	8,420	17,488	257	321	304
82 Wayne State University	59,521	4,700	7,230	0	675	40,433	915	1,067	4,501
83 University of Kansas	57,111	3,728	5,710	7,324	621	29,894	1,086	286	8,462
84 CUNY Mt Sinai Sch of Med	56,856	0	0	0	0	56,856	0	0	0
85 Univ of Alaska Fairbanks	56,701	4,674	12,878	21,766	197	15,080	0	2,106	0
86 Clemson University	56,699	14,179	2,852	56	5,853	28,864	80	4,584	231
87 Florida State University	55,245	800	13,089	6,912	3,438	7,708	3,000	5,939	14,359
88 Washington State Univ	55,173	4,305	2,560	1,028	590	38,711	398	7,581	0
89 Univ of Med & Dent of N J	54,451	0	0	0	0	54,451	0	0	0
90 University of Oklahoma	53,956	8,529	5,276	8,632	1,512	24,853	384	3,765	1,005
Total, 1st 90 insts.	11,816,901	1,850,840	1,271,179	754,436	557,445	6,464,432	167,359	476,253	274,957
91 Auburn University	53,814	16,996	1,713	176	930	33,627	104	268	0
92 Mississippi State Univ	53,670	10,145	1,214	1,067	148	35,502	0	2,906	2,688
93 Oklahoma State University	53,655	9,812	3,811	1,003	1,029	29,247	238	6,076	2,439
94 Georgetown University	53,597	0	4,201	460	776	43,272	64	4,824	0
95 Univ of Cal Riverside	53,213	0	4,146	1,462	682	45,750	76	1,097	0
96 University of New Mexico	52,970	14,763	3,506	1,521	493	25,353	782	1,484	5,068
97 Tufts University	50,424	1,799	1,253	3,922	364	40,168	774	2,144	0
98 Univ of Cal Santa Barbara	50,067	15,237	14,866	9,305	2,360	2,421	2,936	2,942	0
99 Kans St U - Ag & App Sci	47,302	4,651	3,841	295	508	35,441	328	1,693	545
100 U Tex Hlth Sci Ctr Houstn	46,860	0	0	762	0	44,893	0	1,205	0
Total, 1st 100 insts.	12,332,473	1,924,243	1,309,730	774,409	564,735	6,800,106	172,661	500,892	285,697

See footnotes at end of table.

Table B-34. R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
101 Temple University	45,482	218	3,051	26	357	34,089	912	6,675	154
102 Tulane University	45,195	3,119	1,245	148	915	38,787	235	589	157
103 Arizona State University	44,044	14,642	12,340	4,399	1,679	4,326	1,727	4,440	491
104 Brown University	43,564	6,382	5,440	4,138	10,047	16,113	1,136	308	0
105 Virginia Commonwlth Univ	42,976	125	1,331	0	64	40,677	235	544	0
106 U of VT & State Agr Coll	42,743	869	1,020	368	233	37,781	1,381	39	1,052
107 U Tex Hlth Sci Ctr S Anto	41,852	0	0	0	0	41,852	0	0	0
108 Univ of South Carolina	40,421	3,088	6,376	7,972	2,170	12,659	2,119	5,638	399
109 Rensselaer Polytech Inst	39,185	27,106	5,826	988	3,109	1,131	124	258	643
110 Dartmouth College	38,452	4,781	2,665	1,148	367	28,579	76	463	373
Total, 1st 110 insts.	12,756,387	1,984,573	1,349,024	793,596	583,676	7,056,100	180,606	519,846	288,966
111 West Virginia University	37,569	6,894	1,750	1,378	4,806	21,601	433	707	0
112 University of Delaware	37,194	10,874	6,397	6,641	1,933	8,884	921	1,544	0
113 Wake Forest University	37,156	0	368	0	48	36,534	36	0	170
114 Univ of Rhode Island	36,219	6,916I	1,579I	14,917I	1,064I	9,537I	626I	609I	971I
115 Syracuse University	35,543	11,575	5,039	784	9,045	5,500	805	2,703	92
116 Oregon Hlth Sciences Univ	35,097	0	0	0	0	33,929	1,168	0	0
117 Medical College of Wis	34,951	0	0	0	0	34,951	0	0	0
118 U of Houston	34,684	8,020	16,033	1,275	1,076	5,231	1,347	700	1,002
119 Texas Tech University	34,048	8,930	3,245	847	605	15,826	83	4,056	456
120 U Tex Med Brnch Galveston	33,502	0	0	0	0	33,502	0	0	0
Total, 1st 120 insts.	13,112,350	2,037,782	1,383,435	819,438	602,253	7,261,595	186,025	530,165	291,657
121 Univ of Ark Fayetteville	32,842	5,818	3,708	59	1,024	19,596	473	1,721	443
122 University of Dayton	31,984	20,861	3,944	33	759	509	3,075	142	2,661
123 University of Idaho	31,879	6,477	938	1,436	0	21,398	65	1,549	16
124 SUNY Hlth Sci Ctr - Syrcs	31,125	0	0	0	0	31,125	0	0	0
125 Univ of Central Florida	30,991	3,652	5,234	8,739	475	570	19	849	11,453
126 Brandeis University	30,596	0	3,665	0	948	13,244	1,283	11,456	0
127 George Washington Univ	30,284	6,039	739	37	5,338	17,420	83	556	72
128 Thomas Jefferson Univ	29,405	0	0	0	0	29,405	0	0	0
129 Univ of P R-Mayaguez	29,343	1,046	412	1,167	3	26,522	41	0	152
130 Unif Serv Univ of Hlth Sc	27,062	0	0	0	0	27,062	0	0	0
Total, 1st 130 insts.	13,417,861	2,081,675	1,402,075	830,909	610,800	7,448,446	191,064	546,438	306,454
131 Univ Alabama Huntsville	26,186	10,156	9,193	989	4,400	626	64	495	263
132 Lehigh University	26,004	18,214	5,585	469	210	929	224	354	19
133 Montana State University	25,968	2,772	4,305	294	196	17,204	37	1,160	0
134 SUNY at Albany	24,240	0	2,440	11,089	772	2,886	2,894	3,966	193
135 Univ of New Hampshire	23,720	1,929	5,176	7,391	414	5,790	34	2,084	902
136 Univ of Cal Santa Cruz	23,651	152	12,234	3,796	598	5,921	167	783	0
137 Southern Ill U-Carbondale	23,357	3,787	894	1,508	2,722	12,260	202	1,469	515
138 University of Wyoming	23,310	3,208	2,227	2,704	864	12,352	184	718	1,053
139 Med Univ of So Carolina	23,017	0	0	0	0	23,017	0	0	0
140 University of Oregon	22,476	280	9,589	2,510	1,203	6,007	1,405	1,128	354
Total, 1st 140 insts.	13,659,790	2,122,173	1,453,718	861,659	622,179	7,535,438	196,275	558,595	309,753
141 N Mex Inst Mining & Tech	22,289	16,325	1,528	4,114	252	70	0	0	0
142 Rush University	21,741	0	0	0	0	21,213	528	0	0
143 Rice University	21,563	4,842	7,449	2,175	4,222	2,472	368	35	0
144 The Medical Col of Penna	20,542	0	0	0	0	20,542	0	0	0
145 SUNY Hlth Sci Ctr - Brkln	20,523	0	0	0	0	20,523	0	0	0
146 San Diego State Univ	20,124	3,729	1,233	694	1,811	7,931	813	1,399	2,514
147 Howard University	20,097I	2,527I	4,139I	164I	44I	11,760I	82I	1,381I	0I
148 Univ of Maine Orono	19,974	2,479	724	3,330	72	12,228	236	905	0
149 University of Notre Dame	19,385	4,035	11,041	25	461	2,894	217	95	617
150 The University of Alabama	18,395	5,555	2,625	2,291	1,882	2,150	651	2,538	703
Total, 1st 150 insts.	13,864,423	2,161,665	1,482,457	874,452	630,923	7,637,221	199,170	564,948	313,587

See footnotes at end of table.

Table B-34. R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
151 Univ of Nevada - Reno	18,141	2,125	931	3,738	7	9,916	28	1,061	335
152 Drexel University	17,983	11,101	2,510	1,554	875	800	209	934	0
153 Univ of Missouri Rolla	17,692	11,435	3,197	634	1,200	152	133	102	839
154 University of N Dakota	17,518	8,210	346	2,923	0	4,332	28	732	947
155 U of Neb Med Ctr at Omaha	17,291	0	0	0	0	17,291	0	0	0
156 SUNY Col of Env Sci & For	17,221	5,465	1,417	2,234	253	7,329	0	523	0
157 University of Mississippi	17,092	462	1,006	910	10	13,904	291	509	0
158 Desert Research Institute	16,005	0	0	13,671	0	691	0	1,643	0
159 US Naval Postgrad School	15,306	4,419	2,322	3,029	2,454	0	51	3,031	0
160 Michigan Tech University	15,186	8,861	1,826	76	270	3,131	0	903	119
Total, 1st 160 insts.	14,033,858	2,213,743	1,496,012	903,221	635,992	7,694,767	199,910	574,386	315,827
161 University of Louisville	14,466	6,223I	676I	19I	21I	5,760I	128I	248I	1,391I
162 St Louis University	14,251	0	0	578	5	13,664	0	4	0
163 Florida A & M University	14,171	1,664	472	0	155	8,240	0	3,640	0
164 U of MD Center For EES	13,741	0	0	13,741	0	0	0	0	0
165 Univ of Wis-Milwaukee	13,428	2,427	3,101	2,457	184	1,793	327	2,632	507
166 Northeastern University	13,302	4,555	3,227	0	871	3,435	618	596	0
167 New York Medical College	12,958	0	0	0	0	12,958	0	0	0
168 CUNY City College	11,724	2,562	5,559	286	295	2,479	150	114	279
169 Brigham Young University	11,544	5,127I	2,725I	124I	209I	1,612I	53I	1,694I	0I
170 Ohio University	11,461	4,611	1,244	167	7	4,998	268	166	0
Total, 1st 170 insts.	14,164,904	2,240,912	1,513,016	920,593	637,739	7,749,706	201,454	583,480	318,004
171 N J Inst of Technology	11,402	4,089	152	0	1,081	0	0	250	5,830
172 Medical Col of Georgia	11,363	0	0	0	0	11,363	0	0	0
173 Polytechnic University	11,345	8,013	3,069	0	191	0	0	72	0
174 Loyola Univ - Chicago	11,303	0	365	0	67	9,299	839	681	52
175 Univ of Texas at Dallas	11,265	865	5,738	577	779	2,404	29	378	495
176 University of Lowell	11,242	3,675	2,400	1,331	826	1,508	112	312	1,078
177 Hahnemann University	11,158	0	0	0	0	10,428	730	0	0
178 Wright State University	11,043	2,279	2,263	120	926	4,966	223	266	0
179 U of Arkansas Med Sci Cam	10,834	0	0	0	0	10,834	0	0	0
180 Univ of South Alabama	10,503	53	92	243	54	9,774	149	106	32
Total, 1st 180 insts.	14,276,362	2,259,886	1,527,095	922,864	641,663	7,810,282	203,536	585,545	325,491
181 North Dakota State Univ	10,116	538	1,268	71	201	6,833	353	547	305
182 Memphis State University	9,892	797	155	2,679	197	1,858	3,029	1,177	0
183 Albany Medical College	9,827	0	0	0	0	9,827	0	0	0
184 University of Akron	9,728	4,331	4,257	69	347	212	239	273	0
185 Univ of Missouri Sys Off	9,500	1,840	2,783	495	345	3,922	0	0	115
186 San Jose State University	9,488	2,422	1,674	2,942	183	1,362	883	22	0
187 Colorado School of Mines	9,364	3,069	2,160	2,229	802	0	0	167	937
188 Southern Methodist Univ	9,363	1,381	874	4,051	1,131	680	98	583	565
189 SUNY at Binghamton	9,270	486	1,620	604	623	1,901	1,714	2,322	0
190 Univ of North Texas	9,121	0	3,044	1,191	623	3,147	57	945	114
Total, 1st 190 insts.	14,372,031	2,274,750	1,544,930	937,195	646,115	7,840,024	209,909	591,581	327,527
191 Old Dominion U Res Fdn	9,107	3,461	1,133	1,229	791	2,431	53	9	0
192 University of Denver	8,938	4,398	2,528	0	6	427	1,077	502	0
193 Oregon Graduate Institute	8,825	1,656	3,235	2,289	1,645	0	0	0	0
194 South Dakota State Univ	8,472	655	103	366	0	6,888	0	460	0
195 Eastern VA Medical School	8,125	0	0	0	0	8,125	0	0	0
196 Creighton University	7,934	0	0	0	0	7,934	0	0	0
197 Univ of Missouri Kan City	7,926	2	676	53	1,502	4,920	1	465	307
198 College of William & Mary	7,633	0	2,142	4,145	792	300	115	139	0
199 Cleveland State Univ	7,570	3,613	637	10	34	178	26	3,072	0
200 Clarkson University	7,523	4,415	1,409	0	456	404	9	0	830
Total, 1st 200 insts.	14,454,084	2,292,950	1,556,793	945,287	651,341	7,871,631	211,190	596,228	328,664
Total, all other sampled insts.	414,966	73,424	66,047	21,334	23,974	172,036	20,090	30,692	7,369
Estimated total non-sampled insts.	118,229	21,219	20,537	16,315	6,662	36,184	6,665	9,452	1,194

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-35. Federally financed R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Total, all institutions	8,972,466	1,379,664	1,195,155	644,690	473,812	4,772,840	156,260	211,173	138,872
1 Johns Hopkins Univ	590,184	206,629	84,556	40,712	104,618	142,388	1,035	6,036	4,210
2 Stanford University	238,650	65,502	46,501	3,218	13,999	104,921	3,024	1,485	0
3 Mass Inst of Technology	215,140	80,356	74,896	9,032	10,662	29,782	6,309	1,310	2,793
4 University of Washington	182,453	10,581	11,169	17,954	7,703	110,463	4,218	2,857	17,508
5 University of Michigan	174,875	27,507	11,186	11,965	4,787	95,794	2,948	15,829	4,859
6 Univ of Cal San Diego	171,479	4,634	21,204	57,182	4,008	82,372	1,619	460	0
7 Univ of Wis-Madison	169,452	21,745	20,691	14,461	6,424	88,857	7,336	9,899	39
8 Univ of Cal San Francisco	159,906	0	0	0	0	159,906	0	0	0
9 Univ of Cal Los Angeles	159,002	16,679	19,521	7,753	4,888	102,229	5,369	2,563	0
10 Cornell University	157,984	22,630	33,105	3,120	16,363	79,348	1,234	2,047	137
Total, 1st 10 insts.	2,219,125	456,263	322,829	165,397	173,452	996,060	33,092	42,486	29,546
11 Columbia Univ Main Div	146,712	9,386	13,152	28,204	3,869	86,763	1,204	4,134	0
12 Harvard University	143,451	902	22,932	6,202	2,881	92,840	1,437	14,527	1,730
13 Yale University	138,835	4,228	13,283	1,482	8,248	109,353	1,292	949	0
14 University of Minnesota	132,880	10,421	11,064	2,790	5,002	96,625	3,953	3,025	0
15 Univ of Cal Berkeley	124,371	28,936	37,355	2,011	3,474	43,518	3,317	5,518	242
16 Univ of Pennsylvania	123,810	6,439	13,675	19	5,904	87,977	1,570	4,052	4,174
17 Univ of Southern Cal	119,005	16,495	5,587	5,326	29,691	57,030	3,659	1,217	0
18 Pennsylvania State Univ	114,646	59,260	10,202	5,857	1,803	32,852	1,062	2,091	1,519
19 Univ of Ill Urbana	114,398	37,780	18,085	6,030	8,781	25,525	3,381	2,414	12,402
20 Univ. of Colorado	109,145	10,816	17,416	18,997	2,813	54,135	3,438	1,513	17
Total, 1st 20 insts.	3,486,378	640,926	485,580	242,315	245,918	1,682,678	57,405	81,926	49,630
21 University of Rochester	101,049	19,943	10,424	293	2,314	64,950	2,688	395	42
22 Duke University	99,036	3,744	6,555	2,112	1,963	78,886	1,245	4,531	0
23 Georgia Institute of Tech	98,048	65,178	11,650	5,568	10,423	1,256	1,623	2,304	46
24 Washington University	96,829	1,615	5,625	1,470	3,313	84,052	543	211	0
25 Univ of Texas at Austin	94,311	22,894	20,081	5,137	4,107	10,818	1,690	3,467	26,117
26 Texas A & M University	93,584	14,743	8,863	42,308	2,420	22,469	535	2,188	58
27 Univ of NC at Chapel Hill	93,280	0	5,479	2,666	5,502	73,117	722	5,794	0
28 University of Chicago	90,459	0	22,261	3,765	2,097	60,430	713	1,193	0
29 California Inst of Tech	84,167	13,641	35,366	13,628	3,032	17,524	0	444	532
30 University of Pittsburgh	81,217	2,910	8,547	179	1,002	65,851	1,017	1,021	690
Total, 1st 30 insts.	4,418,358	785,594	620,431	319,441	282,091	2,162,031	68,181	103,474	77,115
31 New York University	81,143	0	2,784	160	11,471	61,409	3,591	793	935
32 University of Arizona	80,533	6,114	23,882	6,665	3,366	37,351	180	1,830	1,145
33 Ohio State University	75,484	12,567	8,188	2,465	1,743	40,523	145	8,857	996
34 University of Iowa	74,271	3,833	11,033	114	713	57,204	583	791	0
35 Univ of Cal Davis	72,718	4,015	6,603	626	571	60,397	145	361	0
36 Baylor Col of Medicine	69,336	0	0	0	0	69,336	0	0	0
37 Case Western Reserve Univ	68,632	13,173	6,932	277	251	47,224	162	613	0
38 Univ Alabama Birmingham	68,204	765	285	0	204	66,448	502	0	0
39 Carnegie-Mellon Univ	65,079	14,934	6,015	80	34,083	4,838	3,324	1,754	51
40 SUNY at Buffalo	64,453	6,486	3,681	209	1,447	50,830	864	924	12
Total, 1st 40 insts.	5,138,211	847,481	689,834	330,037	335,940	2,657,591	77,677	119,397	80,254
41 Woods Hole Ocngrphic Inst	64,333	7,290	0	57,043	0	0	0	0	0
42 Purdue University	63,979	18,733	10,536	1,558	4,306	23,975	1,252	1,465	2,154
43 University of Miami	63,101	1,147	853	13,691	300	44,710	1,160	1,208	32
44 University of Utah	61,819	9,365	6,124	2,238	2,995	40,275	424	398	0
45 University of Florida	60,731	13,379	6,539	1,820	1,846	34,902	1,373	443	429
46 Univ of MD College Park	58,924	15,655	25,029	5,061	3,774	6,546	1,380	1,479	0
47 Indiana University	58,334	165	18,212	394	1,940	33,482	2,281	879	981
48 Yeshiva University	58,224	0	0	0	0	58,224	0	0	0
49 Univ. Of Tennessee System	57,763	18,788	6,292	668	1,724	28,595	363	1,326	7
50 Northwestern University	57,510	8,200	9,029	794	994	33,207	708	493	4,085
Total, 1st 50 insts.	5,742,929	940,203	772,448	413,304	353,819	2,961,507	86,618	127,088	87,942

See footnotes at end of table.

Table B-35. Federally financed R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
51 Univ of Massachusetts	56,505	4,142	8,275	1,396	7,725E	31,249	2,336	1,044	338
52 Boston University	56,402	1,823	6,179	87	824	44,376	312	704	2,097
53 Vanderbilt University	56,151	3,793	6,022	93	483	44,539	1,040	181	0
54 Michigan State University	51,741	3,604	14,203	315	585	27,682	865	2,027	2,460
55 UT SW Medical Ctr-Dallas	51,254	0	0	0	0	51,254	0	0	0
56 University of Virginia	51,214	7,621	7,722	3,940	3,162	26,963	1,535	254	17
57 SUNY at Stony Brook	49,726	2,178	12,660	5,081	2,336	25,910	511	958	92
58 Oregon State University	49,112	2,902	2,608	16,577	637	21,400	10	706	4,272
59 Princeton University	47,176	10,508	15,037	3,454	5,361	8,967	2,377	1,472	0
60 Colorado State University	46,572	10,472	3,983	7,134	741	20,906	1,114	2,190	32
Total, 1st 60 insts.	6,258,782	987,246	849,137	451,381	375,673	3,264,753	96,718	136,624	97,250
61 Emory University	46,497	0	3,135	0	233	42,675	210	244	0
62 Univ of Cal Irvine	46,492	2,524	10,613	0	2,448	29,586	0	1,321	0
63 University of Connecticut	46,184	3,498	1,223	4,366	590	34,893	1,042	390	182
64 New Mexico State Univ	45,660	27,538	1,801	1,501	7,326	7,066	209	219	0
65 Univ of Ill Chicago	43,288	2,247	4,880	283	1,229	32,438	219	522	1,470
66 University of Georgia	42,797	413	2,654	1,574	2,509	32,523	1,419	1,705	0
67 Utah State University	42,449	21,007	3,652	5,811	112	10,611	118	259	879
68 Rockefeller University	41,192	0	4,477	0	40	36,675	0	0	0
69 Tufts University	40,771	1,409	1,193	2,937	364	33,168	620	1,080	0
70 University of Cincinnati	40,598	5,956	3,301	13	308	30,550	109	15	346
Total, 1st 70 insts.	6,694,710	1,051,838	886,066	467,866	390,832	3,554,938	100,664	142,379	100,127
71 Univ of Hawaii-Manoa	40,574	649	12,878	14,673	159	8,077	329	506	3,303
72 Louisiana State Univ	40,114	2,979	4,744	4,822	279	26,177	238	110	765
73 Univ of Cal Santa Barbara	39,227	12,352	13,249	6,604	1,774	1,789	2,180	1,279	0
74 VA Polytech Inst & St U	38,597	17,234	4,064	1,694	1,597	12,417	366	1,225	0
75 N C State Univ at Raleigh	37,783	11,209	2,616	2,257	1,998	18,937	111	655	0
76 Georgetown University	37,351	0	3,322	389	579	29,642	54	3,365	0
77 CUNY Mt Sinai Sch of Med	37,233	0	0	0	0	37,233	0	0	0
78 Univ of MD Balt Prof Sch	35,970	0	0	0	0	35,970	0	0	0
79 Rutgers the St Univ of NJ	35,896	3,680	10,164	804	3,867	11,762	2,285	3,334	0
80 Brown University	34,506	5,357	4,817	3,499	6,670	12,956	994	213	0
Total, 1st 80 insts.	7,071,961	1,105,298	941,920	502,608	407,755	3,749,898	107,221	153,066	104,195
81 Virginia Commonwlth Univ	30,078	97	1,173	0	57	28,374	170	207	0
82 U Tex Hlth Sci Ctr Houstn	29,500	0	0	463	0	28,089	0	948	0
83 U Tex Hlth Sci Ctr S Anto	29,324	0	0	0	0	29,324	0	0	0
84 UT MD Anderson Cancer Ctr	28,992	0	2,025	0	970	25,997	0	0	0
85 Iowa St U of Sci & Tech	28,895	8,821	1,746	276	1,671	14,476	124	1,693	88
86 U of VT & State Agr Coll	28,535	464	686	131	155	25,864	1,048	6	181
87 Wake Forest University	28,511	0	124	0	48	28,334	0	0	5
88 Wayne State University	28,167	1,740	3,583	0	211	21,744	624	142	123
89 Univ of Med & Dent of N J	27,983	0	0	0	0	27,983	0	0	0
90 Dartmouth College	27,222	3,670	2,155	495	242	20,537	31	92	0
Total, 1st 90 insts.	7,359,168	1,120,090	953,412	503,973	411,109	4,000,620	109,218	156,154	104,592
91 University of Kentucky	27,010	3,032	1,558	75	591	19,399	120	567	1,668
92 Univ of Alaska Fairbanks	26,659	1,617	7,298	11,390	154	5,435	0	765	0
93 University of Dayton	26,650	17,382	3,287	27	633	424	2,562	118	2,217
94 Univ of South Florida	26,576	15,155	1,230	3,080	195	5,787	892	237	0
95 University of Kansas	26,420	2,139	2,457	645	339	15,951	671	25	4,193
96 Univ of Nebraska-Lincoln	25,803	991	3,506	1,469	443	18,552	270	572	0
97 Temple University	25,232	46	1,169	3	87	20,920	439	2,568	0
98 George Washington Univ	25,220	4,766	700	35	5,142	14,279	83	162	53
99 Florida State University	24,897	113	4,718	3,877	798	3,623	1,328	198	10,242
100 Oregon Hlth Sciences Univ	24,162	0	0	0	0	23,197	965	0	0
Total, 1st 100 insts.	7,617,797	1,165,331	979,335	524,574	419,491	4,128,187	116,548	161,366	122,965

See footnotes at end of table.

Table B-35. Federally financed R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
101 Tulane University	24,095	578	413	61	445	22,147	88	287	76
102 University of New Mexico	23,934	7,444	2,472	788	172	9,720	678	1,032	1,628
103 U Tex Med Brnch Galveston	23,152	0	0	0	0	23,152	0	0	0
104 Washington State Univ	22,697	1,672	2,194	536	471	15,611	219	1,994	0
105 Univ of Missouri Columbia	22,312	1,034	945	530	252	17,948	507	1,073	23
106 Arizona State University	22,151	5,742	7,169	4,017	1,266	2,226	1,244	487	0
107 Univ of Rhode Island	21,940	3,138I	1,137I	10,829I	467I	5,675I	482I	179I	33I
108 Medical College of Wis	21,432	0	0	0	0	21,432	0	0	0
109 Thomas Jefferson Univ	21,311	0	0	0	0	21,311	0	0	0
110 Syracuse University	20,367	6,357	3,312	136	4,474	4,555	524	956	53
Total, 1st 110 insts.	7,841,188	1,191,296	996,977	541,471	427,038	4,271,964	120,290	167,374	124,778
111 Rensselaer Polytech Inst	19,143	11,674	3,993	578	1,869	847	102	80	0
112 Brandeis University	19,080	0	2,733	0	713	10,685	1,090	3,859	0
113 Univ Alabama Huntsville	18,001	6,519	7,282	670	2,771	298	64	218	179
114 Mississippi State Univ	17,694	6,791	778	501	144	8,710	0	770	0
115 Univ of South Carolina	17,596	1,298	3,674	2,612	438	7,403	994	1,129	48
116 University of Oregon	17,286	219	7,244	2,048	924	4,876	1,153	555	267
117 University of Delaware	17,083	4,461	3,758	3,666	1,587	2,356	778	477	0
118 University of Oklahoma	17,020	2,247	2,218	2,494	481	8,909	142	488	41
119 U of Houston	16,358	3,137	7,928	213	494	3,262	692	298	334
120 Rice University	16,340	3,132	5,839	1,808	3,666	1,693	183	19	0
Total, 1st 120 insts.	8,016,789	1,230,774	1,042,424	556,061	440,125	4,321,003	125,488	175,267	125,647
121 Kans St U - Ag & App Sci	15,951	1,429	3,297	230	179	9,602	165	717	332
122 West Virginia University	15,662	3,211	790	554	572	10,264	155	116	0
123 Univ of Cal Riverside	15,584	0	3,866	981	347	10,018	17	355	0
124 Auburn University	15,179	7,664	972	100	393	5,875	77	98	0
125 SUNY at Albany	15,171	0	1,808	5,282	553	2,169	2,471	2,782	106
126 US Naval Postgrad School	15,170	4,407	2,265	2,981	2,435	0	51	3,031	0
127 Univ of New Hampshire	14,594	462	4,497	4,231	310	3,238	34	1,742	80
128 Oklahoma State University	14,116	3,577	2,315	150	362	7,307	62	283	60
129 Univ of P R-Mayaguez	14,114	438	412	1,067	1	12,003	41	0	152
130 University of N Dakota	14,104	6,056	315	2,874	0	4,004	24	305	526
Total, 1st 130 insts.	8,166,434	1,258,018	1,062,961	574,511	445,277	4,385,483	128,585	184,696	126,903
131 University of Wyoming	13,804	2,514	1,558	2,055	804	6,321	165	264	123
132 University of Notre Dame	13,209	1,662	9,376	0	424	1,460	189	92	6
133 San Diego State Univ	13,048	3,034	956	155	1,452	5,844	382	812	413
134 Unif Serv Univ of Hlth Sc	12,706	0	0	0	0	12,706	0	0	0
135 Univ of Cal Santa Cruz	12,543	4	5,694	2,270	394	3,907	146	128	0
136 Clemson University	12,484	3,239	722	0	2,175	5,001	44	1,303	0
137 Howard University	12,401I	1,422I	2,803I	112I	31I	7,430I	59I	544I	0I
138 St Louis University	12,272	0	0	578	5	11,688	0	1	0
139 University of Idaho	12,207	3,755	448	653	0	6,980	46	322	3
140 SUNY Hlth Sci Ctr - Brkln	11,552	0	0	0	0	11,552	0	0	0
Total, 1st 140 insts.	8,292,660	1,273,648	1,084,518	580,334	450,562	4,458,372	129,616	188,162	127,448
141 Med Univ of So Carolina	11,547	0	0	0	0	11,547	0	0	0
142 The Medical Col of Penna	11,514	0	0	0	0	11,514	0	0	0
143 Univ of Central Florida	11,153	884	1,121	4,225	260	125	12	4	4,522
144 Texas Tech University	11,130	3,432	1,019	210	227	4,549	34	1,659	0
145 University of Mississippi	10,841	353	845	527	0	8,551	238	327	0
146 Florida A & M University	10,509	922	472	0	155	7,692	0	1,268	0
147 Northeastern University	10,201	3,127	2,606	0	834	2,852	525	257	0
148 New York Medical College	10,021	0	0	0	0	10,021	0	0	0
149 Lehigh University	9,925	6,186	2,802	171	100	299	187	180	0
150 SUNY Hlth Sci Ctr - Syrcs	9,520	0	0	0	0	9,520	0	0	0
Total, 1st 150 insts.	8,399,021	1,288,552	1,093,383	585,467	452,138	4,525,042	130,612	191,857	131,970

See footnotes at end of table.

Table B-35. Federally financed R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
151 CUNY City College	9,005	1,622	5,001	132	260	1,571	26	114	279
152 Desert Research Institute	8,968	0	0	7,380	0	378	0	1,210	0
153 Univ of Ark Fayetteville	8,955	1,787	1,154	17	139	5,466	23	335	34
154 Montana State University	8,781	780	2,670	137	22	4,834	0	338	0
155 Univ of Nevada - Reno	8,647	1,463	755	1,800	7	4,491	26	104	1
156 U of Neb Med Ctr at Omaha	8,572	0	0	0	0	8,572	0	0	0
157 Univ of Maine Orono	8,288	907	622	2,236	57	3,984	180	302	0
158 Hahnemann University	7,809	0	0	0	0	7,478	331	0	0
159 Rush University	7,582	0	0	0	0	7,159	423	0	0
160 Medical Col of Georgia	7,392	0	0	0	0	7,392	0	0	0
Total, 1st 160 insts.	8,483,020	1,295,111	1,103,585	597,169	452,623	4,576,367	131,621	194,260	132,284
161 Albany Medical College	7,259	0	0	0	0	7,259	0	0	0
162 San Jose State University	7,220	1,879	1,332	2,360	50	728	871	0	0
163 N Mex Inst Mining & Tech	7,183	4,378	829	1,897	36	43	0	0	0
164 Univ of South Alabama	6,966	18	60	52	42	6,587	132	43	32
165 Eastern VA Medical School	6,887	0	0	0	0	6,887	0	0	0
166 University of Denver	6,825	3,071	2,246	0	0	394	896	218	0
167 Polytechnic University	6,824	5,661	900	0	191	0	0	72	0
168 Univ of Texas at Dallas	6,812	0	4,343	342	254	1,382	0	62	429
169 Oregon Graduate Institute	6,582	1,106	2,410	1,595	1,471	0	0	0	0
170 Southern Ill U-Carbondale	6,571	845	233	456	129	4,462	54	217	175
Total, 1st 170 insts.	8,552,149	1,312,069	1,115,938	603,871	454,796	4,604,109	133,574	194,872	132,920
171 The University of Alabama	6,542	2,514	1,739	408	80	633	288	424	456
172 Meharry Medical College	6,397	0	0	0	0	6,397	0	0	0
173 Drexel University	6,371	3,336	1,451	1,278	143	148	0	15	0
174 Southern Methodist Univ	6,244	384	439	3,913	842	191	97	378	0
175 Old Dominion U Res Fdn	6,175	3,139	1,124	874	539	437	53	9	0
176 Catholic Univ of America	6,077	1,508	3,640	0	14	224	638	53	0
177 Loyola Univ - Chicago	6,051	0	240	0	56	4,695	585	475	0
178 University of Lowell	5,974	2,215	1,510	33	161	927	0	198	930
179 University of Louisville	5,953	894I	479I	2I	20I	3,756I	71I	0I	731I
180 Med Col of Ohio at Toledo	5,855	0	0	0	0	5,855	0	0	0
Total, 1st 180 insts.	8,613,788	1,326,059	1,126,560	610,379	456,651	4,627,372	135,306	196,424	135,037
181 Boston College	5,824	0	2,207	567	2,372	438	81	159	0
182 NC Ag & Tech State Univ	5,752	2,470	251	0	27	2,511	111	128	254
183 Wright State University	5,714	878	1,305	0	560	2,780	125	66	0
184 Univ of Wis-Milwaukee	5,447	949	1,653	1,047	0	892	206	692	8
185 College of William & Mary	5,349	0	1,818	2,601	624	177	3	126	0
186 North Dakota State Univ	5,291	404	566	45	87	3,481	162	343	203
187 U of Arkansas Med Sci Cam	5,258	0	0	0	0	5,258	0	0	0
188 Univ of P R-Med Sci Cmpus	5,235	0	0	0	0	5,235	0	0	0
189 Michigan Tech University	5,210	2,483	1,214	41	262	1,139	0	19	52E
190 Tuskegee University	4,967	923I	319I	0I	128I	3,554I	11I	32I	0I
Total, 1st 190 insts.	8,667,835	1,334,166	1,135,893	614,680	460,711	4,652,837	136,005	197,989	135,554
191 Alabama A & M University	4,801	66	1,984	0	0	2,267	0	484	0
192 Brigham Young University	4,785	3,231I	837I	65I	73I	459I	0I	120I	0I
193 Colorado School of Mines	4,435	1,622	1,408	484	503	0	0	101	317
194 Clarkson University	4,359	2,041	814	0	425	294	0	0	785
195 Morehouse School of Med	4,238	0	0	0	0	4,238	0	0	0
196 CUNY Hunter College	4,065	0	1,599	37	48	1,486	780	115	0
197 Illinois Inst of Tech	3,947	2,321	883	436	103	187	17	0	0
198 Ohio University	3,722	1,794	622	11	0	1,085	210	0	0
199 Jackson State University	3,624	0	1,507	0	703	1,264	0	150	0
200 Univ of Sthrn Mississippi	3,588	1	2,300	430	265	392	178	22	0
Total, 1st 200 insts.	8,709,399	1,345,242	1,147,847	616,143	462,831	4,664,509	137,190	198,981	136,656
Total, all other sampled insts.	205,731	25,663	35,255	16,251	7,809	94,846	13,851	9,840	2,216
Estimated total non-sampled insts.	57,336	8,759	12,053	12,296	3,172	13,485	5,219	2,352	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-36. Non-Federal R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Total, all institutions	6,014,813	1,007,929	448,222	338,246	208,164	3,307,011	81,685	425,199	198,355
1 Texas A & M University	157,122	37,798	10,858	9,912	1,572	80,524	325	8,724	7,409
2 Cornell University	128,749	16,018	10,123	2,384	5,156	84,292	1,641	8,367	768
3 University of Minnesota	125,734	17,288	3,359	4,408	1,667	90,722	2,330	5,430	530
4 Univ of Wis-Madison	116,530	12,952	6,506	6,408	2,107	76,284	1,507	9,672	1,094
5 Univ of Cal Davis	107,579	3,109	743	113	142	102,226	18	1,228	0
6 University of Michigan	106,030	19,359	4,561	4,177	3,350	47,390	2,653	21,031	3,509
7 Pennsylvania State Univ	105,284	38,016	4,485	6,680	1,057	41,813	1,694	5,675	5,864
8 University of Georgia	103,156	3,066	3,585	4,537	2,700	71,144	2,249	15,875	0
9 Univ of Texas at Austin	99,026	28,050	15,764	15,782	7,319	7,549	514	10,415	13,633
10 Univ of Ill Urbana	96,192	20,223	5,222	14,672	8,182	23,356	2,039	4,918	17,580
Total, 1st 10 insts.	1,145,402	195,879	65,206	69,073	33,252	625,300	14,970	91,335	50,387
11 University of Arizona	93,586	6,469	26,086	15,947	975	37,729	121	5,564	695
12 N C State Univ at Raleigh	91,108	23,212	2,872	3,216	2,516	57,539	31	1,722	0
13 Univ of MD College Park	90,586	25,969	21,875	1,496	12,236	13,196	3,393	12,421	0
14 Rutgers the St Univ of NJ	88,678	15,783	6,316	4,635	5,411	42,690	2,917	7,951	2,975
15 Ohio State University	87,206	17,254	4,034	2,026	464	51,060	193	4,340	7,835
16 Univ of Cal Berkeley	85,596	18,457	7,643	1,013	948	40,472	2,616	11,077	3,370
17 Louisiana State Univ	82,243	10,237	4,037	9,507	3,213	47,628	903	5,647	1,071
18 Georgia Institute of Tech	76,616	50,931	9,103	4,350	8,145	982	1,268	1,801	36
19 Iowa St U of Sci & Tech	74,279	16,404	2,530	324	6,932	41,631	493	3,871	2,094
20 Mass Inst of Technology	72,017	36,011	15,019	2,582	2,941	4,540	1,264	3,799	5,861
Total, 1st 20 insts.	1,987,317	416,606	164,721	114,169	77,033	962,767	28,169	149,528	74,324
21 Michigan State University	69,715	7,890	6,918	844	175	45,827	874	3,078	4,109
22 Univ of Cal Los Angeles	68,826	6,296	2,243	3,519	1,743	42,704	1,325	10,996	0
23 Univ. Of Tennessee System	67,057	11,064	4,428	787	2,670	41,822	297	4,061	1,928
24 Harvard University	66,068	232	2,781	490	515	34,931	686	26,148	285
25 VA Polytech Inst & St U	65,669	18,889	4,314	1,803	1,601	35,360	339	3,363	0
26 Baylor Col of Medicine	65,345	0	0	0	0	65,345	0	0	0
27 University of Florida	65,039	13,783	5,114	2,124	1,554	38,149	1,301	1,745	1,269
28 University of Connecticut	63,144	16,541	2,752	2,203	1,507	34,241	1,975	2,809	1,116
29 Northwestern University	61,481	6,528	2,855	514	451	33,382	84	734	16,933
30 Purdue University	60,344	14,140	3,129	462	838	36,144	475	5,088	68
Total, 1st 30 insts.	2,640,005	511,969	199,255	126,915	88,087	1,370,672	35,525	207,550	100,032
31 Univ of Cal San Francisco	59,540	0	0	0	0	59,540	0	0	0
32 Johns Hopkins Univ	58,211	3,119	1,287	3,258	174	37,711	158	4,222	8,282
33 UT MD Anderson Cancer Ctr	56,911	0	1,028	0	947	54,936	0	0	0
34 Univ of Massachusetts	54,139	4,672	4,358	4,666	1,993	35,293	672	2,397	88
35 Univ of Missouri Columbia	51,743	4,619	768	598	76	39,962	954	3,157	1,609
36 Univ of Pennsylvania	49,934	3,542	1,329	47	2,261	29,769	0	12,215	771
37 Stanford University	47,344	12,809	4,232	1,968	1,653	24,431	1,057	1,194	0
38 Univ of Cal San Diego	45,512	1,739	3,336	18,418	3,066	16,852	791	1,310	0
39 Clemson University	44,215	10,940	2,130	56	3,678	23,863	36	3,281	231
40 Univ of Southern Cal	43,008	8,030	520	1,979	3,455	25,876	1,439	1,709	0
Total, 1st 40 insts.	3,150,562	561,439	218,243	157,905	105,390	1,718,905	40,632	237,035	111,013
41 University of Kentucky	42,522	8,304	328	72	49	29,793	36	369	3,571
42 Univ of Nebraska-Lincoln	42,478	6,262	1,355	845	660	30,541	332	2,079	404
43 Oregon State University	42,243	2,228	2,062	3,520	576	30,512	0	1,593	1,752
44 Univ of Ill Chicago	41,949	3,692	2,125	843	428	27,531	199	1,770	5,361
45 Univ of MD Balt Prof Sch	39,884	0	0	0	0	39,884	0	0	0
46 Oklahoma State University	39,539	6,235	1,496	853	667	21,940	176	5,793	2,379
47 University of Washington	39,259	6,157	2,212	1,244	553	25,721	335	1,429	1,608
48 Auburn University	38,635	9,332	741	76	537	27,752	27	170	0
49 Univ of Cal Riverside	37,629	0	280	481	335	35,732	59	742	0
50 University of Oklahoma	36,936	6,282	3,058	6,138	1,031	15,944	242	3,277	964
Total, 1st 50 insts.	3,551,636	609,931	231,900	171,977	110,226	2,004,255	42,038	254,257	127,052

See footnotes at end of table.

Table B-36. Non-Federal R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 Carnegie-Mellon Univ	36,556	11,048	1,154	1,596	13,785	6,170	683	1,320	800
52 Mississippi State Univ	35,976	3,354	436	566	4	26,792	0	2,136	2,688
53 SUNY at Buffalo	35,838	13,144	2,732	148	1,161	14,759	1,450	1,925	519
54 Princeton University	35,738	10,449	5,154	2,934	1,975	6,305	2,151	6,770	0
55 Univ. of Colorado	34,549	4,797	3,705	3,514	1,137	18,743	1,519	1,116	18
56 Univ of South Florida	34,397	5,325	1,019	875	751	25,417	546	464	0
57 Rockefeller University	32,753	0	5,041	0	1,016	26,696	0	0	0
58 Washington State Univ	32,476	2,633	366	492	119	23,100	179	5,587	0
59 Yale University	32,304	1,824	1,776	671	1,096	23,425	1,660	1,852	0
60 Duke University	32,054	1,663	1,309	1,204	258	23,760	81	3,779	0
Total, 1st 60 insts.	3,894,277	664,168	254,592	183,977	131,528	2,199,422	50,307	279,206	131,077
61 University of Iowa	31,629	4,877	2,081	303	1,273	20,796	686	1,613	0
62 Washington University	31,590	1,304	850	496	1,014	27,586	211	129	0
63 Wayne State University	31,354	2,960	3,647	0	464	18,689	291	925	4,378
64 Kans St U - Ag & App Sci	31,351	3,222	544	65	329	25,839	163	976	213
65 University of Kansas	30,691	1,589	3,253	6,679	282	13,943	415	261	4,269
66 Florida State University	30,348	687	8,371	3,035	2,640	4,085	1,672	5,741	4,117
67 Univ of Hawaii-Manoa	30,159	695	4,212	8,332	13	12,525	12	2,258	2,112
68 Univ Alabama Birmingham	30,098	3,368	66	0	990	25,494	121	59	0
69 University of Virginia	30,067	6,761	2,806	648	810	15,745	331	2,406	560
70 University of Pittsburgh	30,048	3,291	2,405	40	412	18,732	134	4,985	49
Total, 1st 70 insts.	4,201,612	692,922	282,827	203,575	139,755	2,382,856	54,343	298,559	146,775
71 Univ of Alaska Fairbanks	30,042	3,057	5,580	10,376	43	9,645	0	1,341	0
72 SUNY at Stony Brook	29,729	1,265	5,564	4,940	876	12,498	490	1,636	2,460
73 University of Cincinnati	29,233	6,955	2,342	135	255	17,962	171	229	1,184
74 University of New Mexico	29,036	7,319	1,034	733	321	15,633	104	452	3,440
75 Univ of NC at Chapel Hill	28,817	0	1,029	2,034	2,553	18,593	86	4,522	0
76 UT SW Medical Ctr-Dallas	28,666	0	0	0	0	28,666	0	0	0
77 Utah State University	27,495	2,845	2,010	5,435	164	11,135	136	970	4,800
78 University of Miami	27,197	649	23	2,441	15	23,242	85	323	419
79 Univ of Med & Dent of N J	26,468	0	0	0	0	26,468	0	0	0
80 Columbia Univ Main Div	25,433	6,043	566	1,778	1,177	13,300	134	2,435	0
Total, 1st 80 insts.	4,483,728	721,055	300,975	231,447	145,159	2,559,998	55,549	310,467	159,078
81 Univ of Ark Fayetteville	23,887	4,031	2,554	42	885	14,130	450	1,386	409
82 Indiana University	23,459	149	3,847	237	687	14,896	514	2,196	933
83 New York University	23,308	0	272	17	1,532	15,474	112	4,541	1,360
84 University of Rochester	22,948	3,825	883	70	539	15,333	2,079	144	75
85 Texas Tech University	22,918	5,498	2,226	637	378	11,277	49	2,397	456
86 Univ of South Carolina	22,825	1,790	2,702	5,360	1,732	5,256	1,125	4,509	351
87 West Virginia University	21,907	3,683	960	824	4,234	11,337	278	591	0
88 Arizona State University	21,893	8,900	5,171	382	413	2,100	483	3,953	491
89 SUNY Hlth Sci Ctr - Syrcs	21,605	0	0	0	0	21,605	0	0	0
90 University of Utah	21,521	6,594	2,509	1,239	995	9,699	263	222	0
Total, 1st 90 insts.	4,709,999	755,525	322,099	240,255	156,554	2,681,105	60,902	330,406	163,153
91 Tulane University	21,100	2,541	832	87	470	16,640	147	302	81
92 Univ of Cal Irvine	20,314	1,720	812	113	579	14,855	0	2,235	0
93 Temple University	20,250	172	1,882	23	270	13,169	473	4,107	154
94 University of Delaware	20,111	6,413	2,639	2,975	346	6,528	143	1,067	0
95 Rensselaer Polytech Inst	20,042	15,432	1,833	410	1,240	284	22	178	643
96 Univ of Central Florida	19,838	2,768	4,113	4,514	215	445	7	845	6,931
97 University of Idaho	19,672	2,722	490	783	0	14,418	19	1,227	13
98 CUNY Mt Sinai Sch of Med	19,623	0	0	0	0	19,623	0	0	0
99 University of Chicago	18,970	0	2,068	229	446	13,617	254	2,356	0
100 U of Houston	18,326	4,883	8,105	1,062	582	1,969	655	402	668
Total, 1st 100 insts.	4,908,245	792,176	344,873	250,451	160,702	2,782,653	62,622	343,125	171,643

See footnotes at end of table.

Table B-36. Non-Federal R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
101 Emory University	18,216	0	903	11	58	15,522	44	1,678	0
102 Colorado State University	17,779	3,381	849	679	174	10,069	129	2,497	1
103 Case Western Reserve Univ	17,536	4,916	3,232	67	14	7,301	24	1,982	0
104 U Tex Hlth Sci Ctr Houstn	17,360	0	0	299	0	16,804	0	257	0
105 Montana State University	17,187	1,992	1,635	157	174	12,370	37	822	0
106 Southern Ill U-Carbondale	16,786	2,942	661	1,052	2,593	7,798	148	1,252	340
107 Yeshiva University	16,272	0	0	0	0	16,262	0	10	0
108 Georgetown University	16,246	0	879	71	197	13,630	10	1,459	0
109 Lehigh University	16,079	12,028	2,783	298	110	630	37	174	19
110 SUNY Col of Env Sci & For	15,338	5,271	1,118	2,065	223	6,158	0	503	0
Total, 1st 110 insts.	5,077,044	822,706	356,933	255,150	164,245	2,889,197	63,051	353,759	172,003
111 New Mexico State Univ	15,270	2,522	491	287	1,094	10,422	48	102	304
112 Univ of P R-Mayaguez	15,229	608	0	100	2	14,519	0	0	0
113 Syracuse University	15,176	5,218	1,727	648	4,571	945	281	1,747	39
114 N Mex Inst Mining & Tech	15,106	11,947	699	2,217	216	27	0	0	0
115 California Inst of Tech	14,564	3,029	4,011	763	1,049	5,488	0	149	75
116 Unif Serv Univ of Hlth Sc	14,356	0	0	0	0	14,356	0	0	0
117 Univ of Rhode Island	14,279	3,778I	442I	4,088I	597I	3,862I	144I	430I	938I
118 Univ of Missouri Rolla	14,233	9,120	2,340	494	1,070	152	116	102	839
119 U of VT & State Agr Coll	14,208	405	334	237	78	11,917	333	33	871
120 Rush University	14,159	0	0	0	0	14,054	105	0	0
Total, 1st 120 insts.	5,223,624	859,333	366,977	263,984	172,922	2,964,939	64,078	356,322	175,069
121 Medical College of Wis	13,519	0	0	0	0	13,519	0	0	0
122 Virginia Commonwlth Univ	12,898	28	158	0	7	12,303	65	337	0
123 U Tex Hlth Sci Ctr S Anto	12,528	0	0	0	0	12,528	0	0	0
124 The University of Alabama	11,853	3,041	886	1,883	1,802	1,517	363	2,114	247
125 Univ of Maine Orono	11,686	1,572	102	1,094	15	8,244	56	603	0
126 Drexel University	11,612	7,765	1,059	276	732	652	209	919	0
127 Brandeis University	11,516	0	932	0	235	2,559	193	7,597	0
128 Med Univ of So Carolina	11,470	0	0	0	0	11,470	0	0	0
129 Dartmouth College	11,230	1,111	510	653	125	8,042	45	371	373
130 U of MD Center For EES	11,222	0	0	11,222	0	0	0	0	0
Total, 1st 130 insts.	5,343,158	872,850	370,624	279,112	175,838	3,035,773	65,009	368,263	175,689
131 Univ of Cal Santa Cruz	11,108	148	6,540	1,526	204	2,014	21	655	0
132 Oregon Hlth Sciences Univ	10,935	0	0	0	0	10,732	203	0	0
133 Univ of Cal Santa Barbara	10,840	2,885	1,617	2,701	586	632	756	1,663	0
134 Woods Hole Ocngrphic Inst	10,548	2,155	0	8,393	0	0	0	0	0
135 U Tex Med Brnch Galveston	10,350	0	0	0	0	10,350	0	0	0
136 N J Inst of Technology	10,320	3,493	123	0	986	0	0	250	5,468
137 Michigan Tech University	9,976	6,378	612	35	8	1,992	0	884	67E
138 Boston University	9,923	971	274	58	150	6,345	91	756	1,278
139 Tufts University	9,653	390	60	985	0	7,000	154	1,064	0
140 University of Wyoming	9,506	694	669	649	60	6,031	19	454	930
Total, 1st 140 insts.	5,446,317	889,964	380,519	293,459	177,832	3,080,869	66,253	373,989	183,432
141 Univ of Nevada - Reno	9,494	662	176	1,938	0	5,425	2	957	334
142 Univ of New Hampshire	9,126	1,467	679	3,160	104	2,552	0	342	822
143 SUNY at Albany	9,069	0	632	5,807	219	717	423	1,184	87
144 Vanderbilt University	9,067	2,005	1,045	49	43	4,457	467	1,001	0
145 Brown University	9,058	1,025	623	639	3,377	3,157	142	95	0
146 The Medical Col of Penna	9,028	0	0	0	0	9,028	0	0	0
147 SUNY Hlth Sci Ctr - Brkln	8,971	0	0	0	0	8,971	0	0	0
148 Univ of Missouri Sys Off	8,822	1,731	2,586	495	345	3,550	0	0	115
149 U of Neb Med Ctr at Omaha	8,719	0	0	0	0	8,719	0	0	0
150 Wake Forest University	8,645	0	244	0	0	8,200	36	0	165
Total, 1st 150 insts.	5,536,316	896,854	386,504	305,547	181,920	3,135,645	67,323	377,568	184,955

See footnotes at end of table.

Table B-36. Non-Federal R&D expenditures at universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
151 University of Louisville	8,513	5,329I	197I	17I	1I	2,004I	57I	248I	660I
152 Univ Alabama Huntsville	8,185	3,637	1,911	319	1,629	328	0	277	84
153 Thomas Jefferson Univ	8,094	0	0	0	0	8,094	0	0	0
154 Univ of Wis-Milwaukee	7,981	1,478	1,448	1,410	184	901	121	1,940	499
155 Ohio University	7,739	2,817	622	156	7	3,913	58	166	0
156 Howard University	7,696I	1,105I	1,336I	52I	13I	4,330I	23I	837I	0I
157 Memphis State University	7,593	592	80	2,175	83	1,550	1,965	1,148	0
158 University of Akron	7,203	3,263	3,102	69	171	168	239	191	0
159 San Diego State Univ	7,076	695	277	539	359	2,087	431	587	2,101
160 Desert Research Institute	7,037	0	0	6,291	0	313	0	433	0
Total, 1st 160 insts.	5,613,433	915,770	395,477	316,575	184,367	3,159,333	70,217	383,395	188,299
161 Brigham Young University	6,759	1,896I	1,888I	59I	136I	1,153I	53I	1,574I	0I
162 SUNY at Binghamton	6,356	443	978	290	523	932	1,051	2,139	0
163 Univ of North Texas	6,308	0	1,824	557	482	2,627	19	716	83
164 University of Mississippi	6,251	109	161	383	10	5,353	53	182	0
165 University of Notre Dame	6,176	2,373	1,665	25	37	1,434	28	3	611
166 Univ of Southwestern LA	5,999	1,091E	199	49	2,663	1,287E	80	341	289
167 Tenn Technological Univ	5,991	5,353	134	0	27	456	2	19	0
168 Univ of Tex at Arlington	5,658	4,247	827	12	239	253	3	77	0
169 U of Arkansas Med Sci Cam	5,576	0	0	0	0	5,576	0	0	0
170 Creighton University	5,548	0	0	0	0	5,548	0	0	0
Total, 1st 170 insts.	5,674,055	931,282	403,153	317,950	188,484	3,183,952	71,506	388,446	189,282
171 Univ of Missouri Kan City	5,535	2	388	53	1,502	2,824	1	458	307
172 University of Dayton	5,334	3,479	657	6	126	85	513	24	444
173 Wright State University	5,329	1,401	958	120	366	2,186	98	200	0
174 University of Lowell	5,268	1,460	890	1,298	665	581	112	114	148
175 Loyola Univ - Chicago	5,252	0	125	0	11	4,604	254	206	52
176 Rice University	5,223	1,710	1,610	367	556	779	185	16	0
177 South Dakota State Univ	5,218	448	68	45	0	4,365	0	292	0
178 University of Oregon	5,190	61	2,345	462	279	1,131	252	573	87
179 George Washington Univ	5,064	1,273	39	2	196	3,141	0	394	19
180 Colorado School of Mines	4,929	1,447	752	1,745	299	0	0	66	620
Total, 1st 180 insts.	5,726,397	942,563	410,985	322,048	192,484	3,203,648	72,921	390,789	190,959
181 Inst Paper Sci and Tech	4,849	2,321I	1,070I	385I	273I	800I	0I	0I	0I
182 North Dakota State Univ	4,825	134	702	26	114	3,352	191	204	102
183 Cleveland State Univ	4,810	1,699	318	4	34	122	26	2,607	0
184 Union College (NY)	4,715	1,320I	848I	158I	544	393I	356I	1,096I	0I
185 Polytechnic University	4,521	2,352	2,169	0	0	0	0	0	0
186 Georgia State University	4,493	0	854	105	777	750	651	1,004	352
187 Univ of Texas at Dallas	4,453	865	1,395	235	525	1,022	29	316	66
188 Northern Illinois Univ	4,356	324	1,014	317	431	925	112	1,233	0
189 New York Inst Technology	3,998I	769I	255I	10I	2,239I	725I	0I	0I	0I
190 Medical Col of Georgia	3,971	0	0	0	0	3,971	0	0	0
Total, 1st 190 insts.	5,771,388	952,347	419,610	323,288	197,421	3,215,708	74,286	397,249	191,479
191 University of Montana	3,711	0	288	102	68	2,132	7	664	450
192 Florida A & M University	3,662	742	0	0	0	548	0	2,372	0
193 Univ of South Alabama	3,537	35	32	191	12	3,187	17	63	0
194 Alfred University	3,425	3,425	0	0	0	0	0	0	0
195 University of N Dakota	3,414	2,154	31	49	0	328	4	427	421
196 Hahnemann University	3,349	0	0	0	0	2,950	399	0	0
197 Louisiana Tech University	3,230I	2,477I	1I	0I	0I	752I	0I	0I	0I
198 Clarkson University	3,164	2,374	595	0	31	110	9	0	45
199 Southern Methodist Univ	3,119	997	435	138	289	489	1	205	565
200 Northeastern University	3,101	1,428	621	0	37	583	93	339	0
Total, 1st 200 insts.	5,805,100	965,979	421,613	323,768	197,858	3,226,787	74,816	401,319	192,960
Total, all other sampled insts.	148,820	29,490	18,125	10,459	6,817	57,525	5,423	16,780	4,201
Estimated total non-sampled insts.	60,893	12,460	8,484	4,019	3,489	22,699	1,446	7,100	1,194

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-37. R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
Total, all institutions	9,819,044	1,550,740	1,012,761	717,489	324,896	5,324,252	159,475	458,497	270,933
1 Univ of Wis-Madison	285,982	34,697	27,197	20,869	8,531	165,141	8,843	19,571	1,133
2 University of Michigan	280,905	46,866	15,747	16,142	8,137	143,184	5,601	36,860	8,368
3 University of Minnesota	258,614	27,709	14,423	7,198	6,669	187,347	6,283	8,455	530
4 Texas A & M University	250,706	52,541	19,721	52,220	3,992	102,993	860	10,912	7,467
5 Univ of Cal Los Angeles	227,828	22,975	21,764	11,272	6,631	144,933	6,694	13,559	0
6 University of Washington	221,712	16,738	13,381	19,198	8,256	136,184	4,553	4,286	19,116
7 Pennsylvania State Univ	219,930	97,276	14,687	12,537	2,860	74,665	2,756	7,766	7,383
8 Univ of Cal San Francisco	219,446	0	0	0	0	219,446	0	0	0
9 Univ of Cal San Diego	216,991	6,373	24,540	75,600	7,074	99,224	2,410	1,770	0
10 Univ of Ill Urbana	210,590	58,003	23,307	20,702	16,963	48,881	5,420	7,332	29,982
Total, 1st 10 insts.	2,392,704	363,178	174,767	235,738	69,113	1,321,998	43,420	110,511	73,979
11 Univ of Cal Berkeley	209,967	47,393	44,998	3,024	4,422	83,990	5,933	16,595	3,612
12 Univ of Texas at Austin	193,337	50,944	35,845	20,919	11,426	18,367	2,204	13,882	39,750
13 Univ of Cal Davis	180,297	7,124	7,346	739	713	162,623	163	1,589	0
14 Georgia Institute of Tech	174,664	116,109	20,753	9,918	18,568	2,238	2,891	4,105	82
15 University of Arizona	174,119	12,583	49,968	22,612	4,341	75,080	301	7,394	1,840
16 Ohio State University	162,690	29,821	12,222	4,491	2,207	91,583	338	13,197	8,831
17 Univ of MD College Park	149,510	41,624	46,904	6,557	16,010	19,742	4,773	13,900	0
18 University of Georgia	145,953	3,479	6,239	6,111	5,209	103,667	3,668	17,580	0
19 Univ. of Colorado	143,694	15,613	21,121	22,511	3,950	72,878	4,957	2,629	35
20 N C State Univ at Raleigh	128,891	34,421	5,488	5,473	4,514	76,476	142	2,377	0
Total, 1st 20 insts.	4,055,826	722,289	425,651	338,093	140,473	2,028,642	68,790	203,759	128,129
21 University of Florida	125,770	27,162	11,653	3,944	3,400	73,051	2,674	2,188	1,698
22 Univ. Of Tennessee System	124,820	29,852	10,720	1,455	4,394	70,417	660	5,387	1,935
23 Rutgers the St Univ of NJ	124,574	19,463	16,480	5,439	9,278	54,452	5,202	11,285	2,975
24 Purdue University	124,323	32,873	13,665	2,020	5,144	60,119	1,727	6,553	2,222
25 Louisiana State Univ	122,357	13,216	8,781	14,329	3,492	73,805	1,141	5,757	1,836
26 Univ of NC at Chapel Hill	122,097	0	6,508	4,700	8,055	91,710	808	10,316	0
27 Michigan State University	121,456	11,494	21,121	1,159	760	73,509	1,739	5,105	6,569
28 University of Pittsburgh	111,265	6,201	10,952	219	1,414	84,583	1,151	6,006	739
29 Univ of Massachusetts	110,644	8,814	12,633	6,062	9,718	66,542	3,008	3,441	426
30 University of Connecticut	109,328	20,039	3,975	6,569	2,097	69,134	3,017	3,199	1,298
Total, 1st 30 insts.	5,252,460	891,403	542,139	383,989	188,225	2,745,964	89,917	262,996	147,827
31 University of Iowa	105,900	8,710	13,114	417	1,986	78,000	1,269	2,404	0
32 VA Polytech Inst & St U	104,266	36,123	8,378	3,497	3,198	47,777	705	4,588	0
33 Iowa St U of Sci & Tech	103,174	25,225	4,276	600	8,603	56,107	617	5,564	2,182
34 SUNY at Buffalo	100,291	19,630	6,413	357	2,608	65,589	2,314	2,849	531
35 Univ Alabama Birmingham	98,302	4,133	351	0	1,194	91,942	623	59	0
36 Oregon State University	91,355	5,130	4,670	20,097	1,213	51,912	10	2,299	6,024
37 UT MD Anderson Cancer Ctr	85,903	0	3,053	0	1,917	80,933	0	0	0
38 Univ of Ill Chicago	85,237	5,939	7,005	1,126	1,657	59,969	418	2,292	6,831
39 University of Utah	83,340	15,959	8,633	3,477	3,990	49,974	687	620	0
40 Indiana University	81,793	314	22,059	631	2,627	48,378	2,795	3,075	1,914
Total, 1st 40 insts.	6,192,021	1,012,566	620,091	414,191	217,218	3,376,545	99,355	286,746	165,309
41 University of Virginia	81,281	14,382	10,528	4,588	3,972	42,708	1,866	2,660	577
42 UT SW Medical Ctr-Dallas	79,920	0	0	0	0	79,920	0	0	0
43 SUNY at Stony Brook	79,455	3,443	18,224	10,021	3,212	38,408	1,001	2,594	2,552
44 Univ of MD Balt Prof Sch	75,854	0	0	0	0	75,854	0	0	0
45 Univ of Missouri Columbia	74,055	5,653	1,713	1,128	328	57,910	1,461	4,230	1,632
46 Univ of Hawaii-Manoa	70,733	1,344	17,090	23,005	172	20,602	341	2,764	5,415
47 Utah State University	69,944	23,852	5,662	11,246	276	21,746	254	1,229	5,679
48 University of Cincinnati	69,831	12,911	5,643	148	563	48,512	280	244	1,530
49 University of Kentucky	69,532	11,336	1,886	147	640	49,192	156	936	5,239
50 Univ of Nebraska-Lincoln	68,281	7,253	4,861	2,314	1,103	49,093	602	2,651	404
Total, 1st 50 insts.	6,930,907	1,092,740	685,698	466,788	227,484	3,860,490	105,316	304,054	188,337

See footnotes at end of table.

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Table B-37. R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 Univ of Cal Irvine	66,806	4,244	11,425	113	3,027	44,441	0	3,556	0
52 Colorado State University	64,351	13,853	4,832	7,813	915	30,975	1,243	4,687	33
53 Univ of South Florida	60,973	20,480	2,249	3,955	946	31,204	1,438	701	0
54 New Mexico State Univ	60,930	30,060	2,292	1,788	8,420	17,488	257	321	304
55 Wayne State University	59,521	4,700	7,230	0	675	40,433	915	1,067	4,501
56 University of Kansas	57,111	3,728	5,710	7,324	621	29,894	1,086	286	8,462
57 Univ of Alaska Fairbanks	56,701	4,674	12,878	21,766	197	15,080	0	2,106	0
58 Clemson University	56,699	14,179	2,852	56	5,853	28,864	80	4,584	231
59 Florida State University	55,245	800	13,089	6,912	3,438	7,708	3,000	5,939	14,359
60 Washington State Univ	55,173	4,305	2,560	1,028	590	38,711	398	7,581	0
Total, 1st 60 insts.	7,524,417	1,193,763	750,815	517,543	252,166	4,145,288	113,733	334,882	216,227
61 Univ of Med & Dent of N J	54,451	0	0	0	0	54,451	0	0	0
62 University of Oklahoma	53,956	8,529	5,276	8,632	1,512	24,853	384	3,765	1,005
63 Auburn University	53,814	16,996	1,713	176	930	33,627	104	268	0
64 Mississippi State Univ	53,670	10,145	1,214	1,067	148	35,502	0	2,906	2,688
65 Oklahoma State University	53,655	9,812	3,811	1,003	1,029	29,247	238	6,076	2,439
66 Univ of Cal Riverside	53,213	0	4,146	1,462	682	45,750	76	1,097	0
67 University of New Mexico	52,970	14,763	3,506	1,521	493	25,353	782	1,484	5,068
68 Univ of Cal Santa Barbara	50,067	15,237	14,866	9,305	2,360	2,421	2,936	2,942	0
69 Kans St U - Ag & App Sci	47,302	4,651	3,841	295	508	35,441	328	1,693	545
70 U Tex Hlth Sci Ctr Houstn	46,860	0	0	762	0	44,893	0	1,205	0
Total, 1st 70 insts.	8,044,375	1,273,896	789,188	541,766	259,828	4,476,826	118,581	356,318	227,972
71 Temple University	45,482	218	3,051	26	357	34,089	912	6,675	154
72 Arizona State University	44,044	14,642	12,340	4,399	1,679	4,326	1,727	4,440	491
73 Virginia Commonwlth Univ	42,976	125	1,331	0	64	40,677	235	544	0
74 U of VT & State Agr Coll	42,743	869	1,020	368	233	37,781	1,381	39	1,052
75 U Tex Hlth Sci Ctr S Anto	41,852	0	0	0	0	41,852	0	0	0
76 Univ of South Carolina	40,421	3,088	6,376	7,972	2,170	12,659	2,119	5,638	399
77 West Virginia University	37,569	6,894	1,750	1,378	4,806	21,601	433	707	0
78 University of Delaware	37,194	10,874	6,397	6,641	1,933	8,884	921	1,544	0
79 Univ of Rhode Island	36,219	6,916I	1,579I	14,917I	1,064I	9,537I	626I	609I	971I
80 Oregon Hlth Sciences Univ	35,097	0	0	0	0	33,929	1,168	0	0
Total, 1st 80 insts.	8,447,972	1,317,522	823,032	577,467	272,134	4,722,161	128,103	376,514	231,039
81 U of Houston	34,684	8,020	16,033	1,275	1,076	5,231	1,347	700	1,002
82 Texas Tech University	34,048	8,930	3,245	847	605	15,826	83	4,056	456
83 U Tex Med Brnch Galveston	33,502	0	0	0	0	33,502	0	0	0
84 Univ of Ark Fayetteville	32,842	5,818	3,708	59	1,024	19,596	473	1,721	443
85 University of Idaho	31,879	6,477	938	1,436	0	21,398	65	1,549	16
86 SUNY Hlth Sci Ctr - Syrcs	31,125	0	0	0	0	31,125	0	0	0
87 Univ of Central Florida	30,991	3,652	5,234	8,739	475	570	19	849	11,453
88 Univ of P R-Mayaguez	29,343	1,046	412	1,167	3	26,522	41	0	152
89 Unif Serv Univ of Hlth Sc	27,062	0	0	0	0	27,062	0	0	0
90 Univ Alabama Huntsville	26,186	10,156	9,193	989	4,400	626	64	495	263
Total, 1st 90 insts.	8,759,634	1,361,621	861,795	591,979	279,717	4,903,619	130,195	385,884	244,824
91 Montana State University	25,968	2,772	4,305	294	196	17,204	37	1,160	0
92 SUNY at Albany	24,240	0	2,440	11,089	772	2,886	2,894	3,966	193
93 Univ of New Hampshire	23,720	1,929	5,176	7,391	414	5,790	34	2,084	902
94 Univ of Cal Santa Cruz	23,651	152	12,234	3,796	598	5,921	167	783	0
95 Southern Ill U-Carbondale	23,357	3,787	894	1,508	2,722	12,260	202	1,469	515
96 University of Wyoming	23,310	3,208	2,227	2,704	864	12,352	184	718	1,053
97 Med Univ of So Carolina	23,017	0	0	0	0	23,017	0	0	0
98 University of Oregon	22,476	280	9,589	2,510	1,203	6,007	1,405	1,128	354
99 N Mex Inst Mining & Tech	22,289	16,325	1,528	4,114	252	70	0	0	0
100 SUNY Hlth Sci Ctr - Brkln	20,523	0	0	0	0	20,523	0	0	0
Total, 1st 100 insts.	8,992,185	1,390,074	900,188	625,385	286,738	5,009,649	135,118	397,192	247,841

See footnotes at end of table.

Table B-37. R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
101 San Diego State Univ	20,124	3,729	1,233	694	1,811	7,931	813	1,399	2,514
102 Univ of Maine Orono	19,974	2,479	724	3,330	72	12,228	236	905	0
103 The University of Alabama	18,395	5,555	2,625	2,291	1,882	2,150	651	2,538	703
104 Univ of Nevada - Reno	18,141	2,125	931	3,738	7	9,916	28	1,061	335
105 Univ of Missouri Rolla	17,692	11,435	3,197	634	1,200	152	133	102	839
106 University of N Dakota	17,518	8,210	346	2,923	0	4,332	28	732	947
107 U of Neb Med Ctr at Omaha	17,291	0	0	0	0	17,291	0	0	0
108 SUNY Col of Env Sci & For	17,221	5,465	1,417	2,234	253	7,329	0	523	0
109 University of Mississippi	17,092	462	1,006	910	10	13,904	291	509	0
110 Desert Research Institute	16,005	0	0	13,671	0	691	0	1,643	0
Total, 1st 110 insts.	9,171,638	1,429,534	911,667	655,810	291,973	5,085,573	137,298	406,604	253,179
111 US Naval Postgrad School	15,306	4,419	2,322	3,029	2,454	0	51	3,031	0
112 Michigan Tech University	15,186	8,861	1,826	76	270	3,131	0	903	119
113 University of Louisville	14,466	6,223I	676I	19I	211	5,760I	128I	248I	1,391I
114 Florida A & M University	14,171	1,664	472	0	155	8,240	0	3,640	0
115 U of MD Center For EES	13,741	0	0	13,741	0	0	0	0	0
116 Univ of Wis-Milwaukee	13,428	2,427	3,101	2,457	184	1,793	327	2,632	507
117 CUNY City College	11,724	2,562	5,559	286	295	2,479	150	114	279
118 Ohio University	11,461	4,611	1,244	167	7	4,998	268	166	0
119 N J Inst of Technology	11,402	4,089	152	0	1,081	0	0	250	5,830
120 Medical Col of Georgia	11,363	0	0	0	0	11,363	0	0	0
Total, 1st 120 insts.	9,303,886	1,464,390	927,019	675,585	296,440	5,123,337	138,222	417,588	261,305
121 Univ of Texas at Dallas	11,265	865	5,738	577	779	2,404	29	378	495
122 University of Lowell	11,242	3,675	2,400	1,331	826	1,508	112	312	1,078
123 Wright State University	11,043	2,279	2,263	120	926	4,966	223	266	0
124 U of Arkansas Med Sci Cam	10,834	0	0	0	0	10,834	0	0	0
125 Univ of South Alabama	10,503	53	92	243	54	9,774	149	106	32
126 North Dakota State Univ	10,116	538	1,268	71	201	6,833	353	547	305
127 Memphis State University	9,892	797	155	2,679	197	1,858	3,029	1,177	0
128 University of Akron	9,728	4,331	4,257	69	347	212	239	273	0
129 Univ of Missouri Sys Off	9,500	1,840	2,783	495	345	3,922	0	0	115
130 San Jose State University	9,488	2,422	1,674	2,942	183	1,362	883	22	0
Total, 1st 130 insts.	9,407,497	1,481,190	947,649	684,112	300,298	5,167,010	143,239	420,669	263,330
131 Colorado School of Mines	9,364	3,069	2,160	2,229	802	0	0	167	937
132 SUNY at Binghamton	9,270	486	1,620	604	623	1,901	1,714	2,322	0
133 Univ of North Texas	9,121	0	3,044	1,191	623	3,147	57	945	114
134 Old Dominion U Res Fdn	9,107	3,461	1,133	1,229	791	2,431	53	9	0
135 South Dakota State Univ	8,472	655	103	366	0	6,888	0	460	0
136 Univ of Missouri Kan City	7,926	2	676	53	1,502	4,920	1	465	307
137 College of William & Mary	7,633	0	2,142	4,145	792	300	115	139	0
138 Cleveland State Univ	7,570	3,613	637	10	34	178	26	3,072	0
139 Northern Illinois Univ	7,304	324	1,577	437	534	1,909	237	2,286	0
140 Univ of Tex at Arlington	7,064	4,517	1,602	87	389	352	3	114	0
Total, 1st 140 insts.	9,490,328	1,497,317	962,343	694,463	306,388	5,189,036	145,445	430,648	264,688
141 Georgia State University	7,000	0	1,959	160	814	1,436	1,005	1,274	352
142 Univ of Southwestern LA	6,817	1,203	315	49	2,870	1,657	88	346	289
143 Med Col of Ohio at Toledo	6,809	0	0	0	0	6,809	0	0	0
144 NC Ag & Tech State Univ	6,706	3,097	258	0	49	2,567	111	370	254
145 Tenn Technological Univ	6,641	5,599	353	0	27	636	2	24	0
146 Univ of P R-Med Sci Cmpus	6,528	0	0	0	0	6,528	0	0	0
147 CUNY Hunter College	6,526	0	2,359	75	140	2,516	997	382	57
148 University of Montana	6,482	0	362	152	160	4,636	7	715	450
149 Alabama A & M University	6,272	89	2,446	0	0	3,141	0	596	0
150 Kent State University	5,534	0	2,656	446	637	962	130	298	405
Total, 1st 150 insts.	9,555,643	1,507,305	973,051	695,345	311,085	5,219,924	147,785	434,653	266,495
Total, all other sampled insts.	173,628	24,228	25,877	10,431	8,140	78,142	7,162	15,643	4,005
Estimated total non-sampled insts.	89,773	19,207	13,833	11,713	5,671	26,186	4,528	8,201	433

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-38. Federally financed R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Engi- neering	Physical sciences	Environ- mental sciences	Math & computer sciences	Life sciences	Psy- chology	Social sciences	Other sciences
Total, all institutions	5,182,605	768,259	665,899	421,992	175,570	2,792,440	98,334	145,625	114,488
1 University of Washington	182,453	10,581	11,169	17,954	7,703	110,463	4,218	2,857	17,508
2 University of Michigan	174,875	27,507	11,186	11,965	4,787	95,794	2,948	15,829	4,859
3 Univ of Cal San Diego	171,479	4,634	21,204	57,182	4,008	82,372	1,619	460	0
4 Univ of Wis-Madison	169,452	21,745	20,691	14,461	6,424	88,857	7,336	9,899	39
5 Univ of Cal San Francisco	159,906	0	0	0	0	159,906	0	0	0
6 Univ of Cal Los Angeles	159,002	16,679	19,521	7,753	4,888	102,229	5,369	2,563	0
7 University of Minnesota	132,880	10,421	11,064	2,790	5,002	96,625	3,953	3,025	0
8 Univ of Cal Berkeley	124,371	28,936	37,355	2,011	3,474	43,518	3,317	5,518	242
9 Pennsylvania State Univ	114,646	59,260	10,202	5,857	1,803	32,852	1,062	2,091	1,519
10 Univ of Ill Urbana	114,398	37,780	18,085	6,030	8,781	25,525	3,381	2,414	12,402
Total, 1st 10 insts.	1,503,462	217,543	160,477	126,003	46,870	838,141	33,203	44,656	36,569
11 Univ. of Colorado	109,145	10,816	17,416	18,997	2,813	54,135	3,438	1,513	17
12 Georgia Institute of Tech	98,048	65,178	11,650	5,568	10,423	1,256	1,623	2,304	46
13 Univ of Texas at Austin	94,311	22,894	20,081	5,137	4,107	10,818	1,690	3,467	26,117
14 Texas A & M University	93,584	14,743	8,863	42,308	2,420	22,469	535	2,188	58
15 Univ of NC at Chapel Hill	93,280	0	5,479	2,666	5,502	73,117	722	5,794	0
16 University of Pittsburgh	81,217	2,910	8,547	179	1,002	65,851	1,017	1,021	690
17 University of Arizona	80,533	6,114	23,882	6,665	3,366	37,351	180	1,830	1,145
18 Ohio State University	75,484	12,567	8,188	2,465	1,743	40,523	145	8,857	996
19 University of Iowa	74,271	3,833	11,033	114	713	57,204	583	791	0
20 Univ of Cal Davis	72,718	4,015	6,603	626	571	60,397	145	361	0
Total, 1st 20 insts.	2,376,053	360,613	282,219	210,728	79,530	1,261,262	43,281	72,782	65,638
21 Univ Alabama Birmingham	68,204	765	285	0	204	66,448	502	0	0
22 SUNY at Buffalo	64,453	6,486	3,681	209	1,447	50,830	864	924	12
23 Purdue University	63,979	18,733	10,536	1,558	4,306	23,975	1,252	1,465	2,154
24 University of Utah	61,819	9,365	6,124	2,238	2,995	40,275	424	398	0
25 University of Florida	60,731	13,379	6,539	1,820	1,846	34,902	1,373	443	429
26 Univ of MD College Park	58,924	15,655	25,029	5,061	3,774	6,546	1,380	1,479	0
27 Indiana University	58,334	165	18,212	394	1,940	33,482	2,281	879	981
28 Univ. Of Tennessee System	57,763	18,788	6,292	668	1,724	28,595	363	1,326	7
29 Univ of Massachusetts	56,505	4,142	8,275	1,396	7,725E	31,249	2,336	1,044	338
30 Michigan State University	51,741	3,604	14,203	315	585	27,682	865	2,027	2,460
Total, 1st 30 insts.	2,978,506	451,695	381,395	224,387	106,076	1,605,246	54,921	82,767	72,019
31 UT SW Medical Ctr-Dallas	51,254	0	0	0	0	51,254	0	0	0
32 University of Virginia	51,214	7,621	7,722	3,940	3,162	26,963	1,535	254	17
33 SUNY at Stony Brook	49,726	2,178	12,660	5,081	2,336	25,910	511	958	92
34 Oregon State University	49,112	2,902	2,608	16,577	637	21,400	10	706	4,272
35 Colorado State University	46,572	10,472	3,983	7,134	741	20,906	1,114	2,190	32
36 Univ of Cal Irvine	46,492	2,524	10,613	0	2,448	29,586	0	1,321	0
37 University of Connecticut	46,184	3,498	1,223	4,366	590	34,893	1,042	390	182
38 New Mexico State Univ	45,660	27,538	1,801	1,501	7,326	7,066	209	219	0
39 Univ of Ill Chicago	43,288	2,247	4,880	283	1,229	32,438	219	522	1,470
40 University of Georgia	42,797	413	2,654	1,574	2,509	32,523	1,419	1,705	0
Total, 1st 40 insts.	3,450,805	511,088	429,539	264,843	127,054	1,888,185	60,980	91,032	78,084
41 Utah State University	42,449	21,007	3,652	5,811	112	10,611	118	259	879
42 University of Cincinnati	40,598	5,956	3,301	13	308	30,550	109	15	346
43 Univ of Hawaii-Manoa	40,574	649	12,878	14,673	159	8,077	329	506	3,303
44 Louisiana State Univ	40,114	2,979	4,744	4,822	279	26,177	238	110	765
45 Univ of Cal Santa Barbara	39,227	12,352	13,249	6,604	1,774	1,789	2,180	1,279	0
46 VA Polytech Inst & St U	38,597	17,234	4,064	1,694	1,597	12,417	366	1,225	0
47 N C State Univ at Raleigh	37,783	11,209	2,616	2,257	1,998	18,937	111	655	0
48 Univ of MD Balt Prof Sch	35,970	0	0	0	0	35,970	0	0	0
49 Rutgers the St Univ of NJ	35,896	3,680	10,164	804	3,867	11,762	2,285	3,334	0
50 Virginia Commonwlth Univ	30,078	97	1,173	0	57	28,374	170	207	0
Total, 1st 50 insts.	3,832,091	586,251	485,380	301,521	137,205	2,072,849	66,886	98,622	83,377

See footnotes at end of table.

Table B-38. Federally financed R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 U Tex Hlth Sci Ctr Houstn	29,500	0	0	463	0	28,089	0	948	0
52 U Tex Hlth Sci Ctr S Anto	29,324	0	0	0	0	29,324	0	0	0
53 UT MD Anderson Cancer Ctr	28,992	0	2,025	0	970	25,997	0	0	0
54 Iowa St U of Sci & Tech	28,895	8,821	1,746	276	1,671	14,476	124	1,693	88
55 U of VT & State Agr Coll	28,535	464	686	131	155	25,864	1,048	6	181
56 Wayne State University	28,167	1,740	3,583	0	211	21,744	624	142	123
57 Univ of Med & Dent of N J	27,983	0	0	0	0	27,983	0	0	0
58 University of Kentucky	27,010	3,032	1,558	75	591	19,399	120	567	1,668
59 Univ of Alaska Fairbanks	26,659	1,617	7,298	11,390	154	5,435	0	765	0
60 Univ of South Florida	26,576	15,155	1,230	3,080	195	5,787	892	237	0
Total, 1st 60 insts.	4,113,732	617,080	503,506	316,936	141,152	2,276,947	69,694	102,980	85,437
61 University of Kansas	26,420	2,139	2,457	645	339	15,951	671	25	4,193
62 Univ of Nebraska-Lincoln	25,803	991	3,506	1,469	443	18,552	270	572	0
63 Temple University	25,232	46	1,169	3	87	20,920	439	2,568	0
64 Florida State University	24,897	113	4,718	3,877	798	3,623	1,328	198	10,242
65 Oregon Hlth Sciences Univ	24,162	0	0	0	0	23,197	965	0	0
66 University of New Mexico	23,934	7,444	2,472	788	172	9,720	678	1,032	1,628
67 U Tex Med Brnch Galveston	23,152	0	0	0	0	23,152	0	0	0
68 Washington State Univ	22,697	1,672	2,194	536	471	15,611	219	1,994	0
69 Univ of Missouri Columbia	22,312	1,034	945	530	252	17,948	507	1,073	23
70 Arizona State University	22,151	5,742	7,169	4,017	1,266	2,226	1,244	487	0
Total, 1st 70 insts.	4,354,492	636,261	528,136	328,801	144,980	2,427,847	76,015	110,929	101,523
71 Univ of Rhode Island	21,940	3,138I	1,137I	10,829I	467I	5,675I	482I	179I	33I
72 Univ Alabama Huntsville	18,001	6,519	7,282	670	2,771	298	64	218	179
73 Mississippi State Univ	17,694	6,791	778	501	144	8,710	0	770	0
74 Univ of South Carolina	17,596	1,298	3,674	2,612	438	7,403	994	1,129	48
75 University of Oregon	17,286	219	7,244	2,048	924	4,876	1,153	555	267
76 University of Delaware	17,083	4,461	3,758	3,666	1,587	2,356	778	477	0
77 University of Oklahoma	17,020	2,247	2,218	2,494	481	8,909	142	488	41
78 U of Houston	16,358	3,137	7,928	213	494	3,262	692	298	334
79 Kans St U - Ag & App Sci	15,951	1,429	3,297	230	179	9,602	165	717	332
80 West Virginia University	15,662	3,211	790	554	572	10,264	155	116	0
Total, 1st 80 insts.	4,529,083	668,711	566,242	352,618	153,037	2,489,202	80,640	115,876	102,757
81 Univ of Cal Riverside	15,584	0	3,866	981	347	10,018	17	355	0
82 Auburn University	15,179	7,664	972	100	393	5,875	77	98	0
83 SUNY at Albany	15,171	0	1,808	5,282	553	2,169	2,471	2,782	106
84 US Naval Postgrad School	15,170	4,407	2,265	2,981	2,435	0	51	3,031	0
85 Univ of New Hampshire	14,594	462	4,497	4,231	310	3,238	34	1,742	80
86 Oklahoma State University	14,116	3,577	2,315	150	362	7,307	62	283	60
87 Univ of P R-Mayaguez	14,114	438	412	1,067	1	12,003	41	0	152
88 University of N Dakota	14,104	6,056	315	2,874	0	4,004	24	305	526
89 University of Wyoming	13,804	2,514	1,558	2,055	804	6,321	165	264	123
90 San Diego State Univ	13,048	3,034	956	155	1,452	5,844	382	812	413
Total, 1st 90 insts.	4,673,967	696,863	585,206	372,494	159,694	2,545,981	83,964	125,548	104,217
91 Unif Serv Univ of Hlth Sc	12,706	0	0	0	0	12,706	0	0	0
92 Univ of Cal Santa Cruz	12,543	4	5,694	2,270	394	3,907	146	128	0
93 Clemson University	12,484	3,239	722	0	2,175	5,001	44	1,303	0
94 University of Idaho	12,207	3,755	448	653	0	6,980	46	322	3
95 SUNY Hlth Sci Ctr - Brkln	11,552	0	0	0	0	11,552	0	0	0
96 Med Univ of So Carolina	11,547	0	0	0	0	11,547	0	0	0
97 Univ of Central Florida	11,153	884	1,121	4,225	260	125	12	4	4,522
98 Texas Tech University	11,130	3,432	1,019	210	227	4,549	34	1,659	0
99 University of Mississippi	10,841	353	845	527	0	8,551	238	327	0
100 Florida A & M University	10,509	922	472	0	155	7,692	0	1,268	0
Total, 1st 100 insts.	4,790,639	709,452	595,527	380,379	162,905	2,618,591	84,484	130,559	108,742
Total, all other sampled insts.	348,608	50,130	61,910	33,383	10,149	164,102	10,434	12,754	5,746
Estimated total non-sampled insts.	43,358	8,677	8,462	8,230	2,516	9,747	3,416	2,312	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-39. R&D expenditures at private universities and colleges, by science/engineering field: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Total, all institutions	5,168,235	836,853	630,616	265,447	357,081	2,755,599	78,470	177,875	66,294
1 Johns Hopkins Univ	648,395	209,748	85,843	43,970	104,792	180,099	1,193	10,258	12,492
2 Mass Inst of Technology	287,157	116,367	89,915	11,614	13,603	34,322	7,573	5,109	8,654
3 Cornell University	286,733	38,648	43,228	5,504	21,519	163,640	2,875	10,414	905
4 Stanford University	285,994	78,311	50,733	5,186	15,652	129,352	4,081	2,679	0
5 Harvard University	209,519	1,134	25,713	6,692	3,396	127,771	2,123	40,675	2,015
6 Univ of Pennsylvania	173,744	9,981	15,004	66	8,165	117,746	1,570	16,267	4,945
7 Columbia Univ Main Div	172,145	15,429	13,718	29,982	5,046	100,063	1,338	6,569	0
8 Yale University	171,139	6,052	15,059	2,153	9,344	132,778	2,952	2,801	0
9 Univ of Southern Cal	162,013	24,525	6,107	7,305	33,146	82,906	5,098	2,926	0
10 Baylor Col of Medicine	134,681	0	0	0	0	134,681	0	0	0
Total, 1st 10 insts.	2,531,520	500,195	345,320	112,472	214,663	1,203,358	28,803	97,698	29,011
11 Duke University	131,090	5,407	7,864	3,316	2,221	102,646	1,326	8,310	0
12 Washington University	128,419	2,919	6,475	1,966	4,327	111,638	754	340	0
13 University of Rochester	123,997	23,768	11,307	363	2,853	80,283	4,767	539	117
14 Northwestern University	118,991	14,728	11,884	1,308	1,445	66,589	792	1,227	21,018
15 University of Chicago	109,429	0	24,329	3,994	2,543	74,047	967	3,549	0
16 New York University	104,451	0	3,056	177	13,003	76,883	3,703	5,334	2,295
17 Carnegie-Mellon Univ	101,635	25,982	7,169	1,676	47,868	11,008	4,007	3,074	851
18 California Inst of Tech	98,731	16,670	39,377	14,391	4,081	23,012	0	593	607
19 University of Miami	90,298	1,796	876	16,132	315	67,952	1,245	1,531	451
20 Case Western Reserve Univ	86,168	18,089	10,164	344	265	54,525	186	2,595	0
Total, 1st 20 insts.	3,624,729	609,554	467,821	156,139	293,584	1,871,941	46,550	124,790	54,350
21 Princeton University	82,914	20,957	20,191	6,388	7,336	15,272	4,528	8,242	0
22 Woods Hole Ocngrphic Inst	74,881	9,445	0	65,436	0	0	0	0	0
23 Yeshiva University	74,496	0	0	0	0	74,486	0	10	0
24 Rockefeller University	73,945	0	9,518	0	1,056	63,371	0	0	0
25 Boston University	66,325	2,794	6,453	145	974	50,721	403	1,460	3,375
26 Vanderbilt University	65,218	5,798	7,067	142	526	48,996	1,507	1,182	0
27 Emory University	64,713	0	4,038	11	291	58,197	254	1,922	0
28 CUNY Mt Sinai Sch of Med	56,856	0	0	0	0	56,856	0	0	0
29 Georgetown University	53,597	0	4,201	460	776	43,272	64	4,824	0
30 Tufts University	50,424	1,799	1,253	3,922	364	40,168	774	2,144	0
Total, 1st 30 insts.	4,288,098	650,347	520,542	232,643	304,907	2,323,280	54,080	144,574	57,725
31 Tulane University	45,195	3,119	1,245	148	915	38,787	235	589	157
32 Brown University	43,564	6,382	5,440	4,138	10,047	16,113	1,136	308	0
33 Rensselaer Polytech Inst	39,185	27,106	5,826	988	3,109	1,131	124	258	643
34 Dartmouth College	38,452	4,781	2,665	1,148	367	28,579	76	463	373
35 Wake Forest University	37,156	0	368	0	48	36,534	36	0	170
36 Syracuse University	35,543	11,575	5,039	784	9,045	5,500	805	2,703	92
37 Medical College of Wis	34,951	0	0	0	0	34,951	0	0	0
38 University of Dayton	31,984	20,861	3,944	33	759	509	3,075	142	2,661
39 Brandeis University	30,596	0	3,665	0	948	13,244	1,283	11,456	0
40 George Washington Univ	30,284	6,039	739	37	5,338	17,420	83	556	72
Total, 1st 40 insts.	4,655,008	730,210	549,473	239,919	335,483	2,516,048	60,933	161,049	61,893
41 Thomas Jefferson Univ	29,405	0	0	0	0	29,405	0	0	0
42 Lehigh University	26,004	18,214	5,585	469	210	929	224	354	19
43 Rush University	21,741	0	0	0	0	21,213	528	0	0
44 Rice University	21,563	4,842	7,449	2,175	4,222	2,472	368	35	0
45 The Medical Col of Penna	20,542	0	0	0	0	20,542	0	0	0
46 Howard University	20,097I	2,527I	4,139I	164I	44I	11,760I	82I	1,381I	0I
47 University of Notre Dame	19,385	4,035	11,041	25	461	2,894	217	95	617
48 Drexel University	17,983	11,101	2,510	1,554	875	800	209	934	0
49 St Louis University	14,251	0	0	578	5	13,664	0	4	0
50 Northeastern University	13,302	4,555	3,227	0	871	3,435	618	596	0
Total, 1st 50 insts.	4,859,281	775,484	583,424	244,884	342,171	2,623,162	63,179	164,448	62,529

See footnotes at end of table.

Table B-39. R&D expenditures at private universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
51 New York Medical College	12,958	0	0	0	0	12,958	0	0	0
52 Brigham Young University	11,544	5,127I	2,725I	124I	209I	1,612I	53I	1,694I	0I
53 Polytechnic University	11,345	8,013	3,069	0	191	0	0	72	0
54 Loyola Univ - Chicago	11,303	0	365	0	67	9,299	839	681	52
55 Hahnemann University	11,158	0	0	0	0	10,428	730	0	0
56 Albany Medical College	9,827	0	0	0	0	9,827	0	0	0
57 Southern Methodist Univ	9,363	1,381	874	4,051	1,131	680	98	583	565
58 University of Denver	8,938	4,398	2,528	0	6	427	1,077	502	0
59 Oregon Graduate Institute	8,825	1,656	3,235	2,289	1,645	0	0	0	0
60 Eastern VA Medical School	8,125	0	0	0	0	8,125	0	0	0
Total, 1st 60 insts.	4,962,667	796,059	596,220	251,348	345,420	2,676,518	65,976	167,980	63,146
61 Creighton University	7,934	0	0	0	0	7,934	0	0	0
62 Clarkson University	7,523	4,415	1,409	0	456	404	9	0	830
63 Illinois Inst of Tech	6,864	4,866	991	632	164	192	19	0	0
64 Meharry Medical College	6,564	0	0	0	0	6,564	0	0	0
65 Catholic Univ of America	6,554	1,516	3,972	0	14	256	667	129	0
66 Inst Paper Sci and Tech	6,231	3,286I	1,487I	385I	273I	800I	0I	0I	0I
67 Boston College	6,152	0	2,288	583	2,500	473	81	227	0
68 Tuskegee University	5,348	1,018I	355I	0I	190I	3,742I	11I	32I	0I
69 Loma Linda University	5,248	0	0	26	0	5,222	0	0	0
70 Union College (NY)	5,193	1,361	946	158	593	683	356	1,096	0
Total, 1st 70 insts.	5,026,278	812,521	607,668	253,132	349,610	2,702,788	67,119	169,464	63,976
71 Stevens Institute of Tech	4,973	4,177	796	0	0	0	0	0	0
72 U Hlth Sci/Chcgo Med Sch	4,535	0	0	0	0	4,344	191	0	0
73 Morehouse School of Med	4,320	0	0	0	0	4,320	0	0	0
74 Worcester Poly Institute	4,208	3,330	193	0	361	172	0	152	0
75 New York Inst Technology	3,998	769I	255I	10I	2,239I	725I	0I	0I	0I
76 Wesleyan University	3,943	0	1,537	40	584	1,651	95	36	0
77 Alfred University	3,874	3,874	0	0	0	0	0	0	0
78 American University	3,765	0	1,032	0	38	1,437	139	1,119	0
79 Texas Col of Osteo Med	3,630	0	0	0	0	3,630	0	0	0
80 Florida Inst of Tech	3,531	569	65	1,357	41	997	0	0	502
Total, 1st 80 insts.	5,067,055	825,240	611,546	254,539	352,873	2,720,064	67,544	170,771	64,478
81 Fairleigh Dickinson Univ	3,356	0I	0I	2,274I	0I	594I	394I	94I	0I
82 University of Tulsa	3,329	2,175	80	332	84	446	199	13	0
83 Mercer University	3,043	2,387	3	44	3	553	42	11	0
84 Chas R Drew U of Med & Sc	2,898	0	0	0	0	2,281	0	617	0
85 Fordham University	2,648	268	18	0	366	905	44	1,047	0
86 Marquette University	2,454	1,003	464	0	77	806	56	2	46
87 Hampton University	2,168	173	1,529	0	400	24	0	42	0
88 Occidental College	2,011	0	281	54	0	1,661	0	15	0
89 Cal Sch Prof Psych-Fresno	1,922	0	0	0	0	0	1,922	0	0
90 Baylor University	1,841	0	776	37	60	138	0	830	0
Total, 1st 90 insts.	5,092,725	831,246	614,697	257,280	353,863	2,727,472	70,201	173,442	64,524
91 Smith College	1,774	0	91	596	76	359	190	462	0
92 Chicago Col of Osteo Med	1,651	0	0	0	0	1,651	0	0	0
93 Amherst College	1,557	0	652	28	28	708	14	68	59
94 Cal Sch Prof Psych-L A	1,551	0	0	0	0	0	1,551	0	0
95 Villanova University	1,440	471	360	0	52	333	224	0	0
96 Seton Hall University	1,417I	0I	479I	0I	1I	45I	829I	63I	0I
97 Santa Clara University	1,396	646	117	0	200	296	23	114	0
98 Wentworth Inst of Tech	1,383	0	0	1,383	0	0	0	0	0
99 Institute of Textile Tech	1,311	523	422	106	260	0	0	0	0
100 Xavier University of LA	1,294	0	383	0	0	911	0	0	0
Total, 1st 100 insts.	5,107,499	832,886	617,201	259,393	354,480	2,731,775	73,032	174,149	64,583
Total, all other sampled insts.	32,280	1,955	6,711	1,452	1,610	13,826	3,301	2,475	950
Estimated total non-sampled insts.	28,456	2,012	6,704	4,602	991	9,998	2,137	1,251	761

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-40. Federally financed R&D expenditures at private universities and colleges, by science/engineering field: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Total, all institutions	3,789,860	611,405	529,256	222,699	298,243	1,980,400	57,926	65,548	24,384
1 Johns Hopkins Univ	590,184	206,629	84,556	40,712	104,618	142,388	1,035	6,036	4,210
2 Stanford University	238,650	65,502	46,501	3,218	13,999	104,921	3,024	1,485	0
3 Mass Inst of Technology	215,140	80,356	74,896	9,032	10,662	29,782	6,309	1,310	2,793
4 Cornell University	157,984	22,630	33,105	3,120	16,363	79,348	1,234	2,047	137
5 Columbia Univ Main Div	146,712	9,386	13,152	28,204	3,869	86,763	1,204	4,134	0
6 Harvard University	143,451	902	22,932	6,202	2,881	92,840	1,437	14,527	1,730
7 Yale University	138,835	4,228	13,283	1,482	8,248	109,353	1,292	949	0
8 Univ of Pennsylvania	123,810	6,439	13,675	19	5,904	87,977	1,570	4,052	4,174
9 Univ of Southern Cal	119,005	16,495	5,587	5,326	29,691	57,030	3,659	1,217	0
10 University of Rochester	101,049	19,943	10,424	293	2,314	64,950	2,688	395	42
Total, 1st 10 insts.	1,974,820	432,510	318,111	97,608	198,549	855,352	23,452	36,152	13,086
11 Duke University	99,036	3,744	6,555	2,112	1,963	78,886	1,245	4,531	0
12 Washington University	96,829	1,615	5,625	1,470	3,313	84,052	543	211	0
13 University of Chicago	90,459	0	22,261	3,765	2,097	60,430	713	1,193	0
14 California Inst of Tech	84,167	13,641	35,366	13,628	3,032	17,524	0	444	532
15 New York University	81,143	0	2,784	160	11,471	61,409	3,591	793	935
16 Baylor Col of Medicine	69,336	0	0	0	0	69,336	0	0	0
17 Case Western Reserve Univ	68,632	13,173	6,932	277	251	47,224	162	613	0
18 Carnegie-Mellon Univ	65,079	14,934	6,015	80	34,083	4,838	3,324	1,754	51
19 Woods Hole Ocngrphic Inst	64,333	7,290	0	57,043	0	0	0	0	0
20 University of Miami	63,101	1,147	853	13,691	300	44,710	1,160	1,208	32
Total, 1st 20 insts.	2,756,935	488,054	404,502	189,834	255,059	1,323,761	34,190	46,899	14,636
21 Yeshiva University	58,224	0	0	0	0	58,224	0	0	0
22 Northwestern University	57,510	8,200	9,029	794	994	33,207	708	493	4,085
23 Boston University	56,402	1,823	6,179	87	824	44,376	312	704	2,097
24 Vanderbilt University	56,151	3,793	6,022	93	483	44,539	1,040	181	0
25 Princeton University	47,176	10,508	15,037	3,454	5,361	8,967	2,377	1,472	0
26 Emory University	46,497	0	3,135	0	233	42,675	210	244	0
27 Rockefeller University	41,192	0	4,477	0	40	36,675	0	0	0
28 Tufts University	40,771	1,409	1,193	2,937	364	33,168	620	1,080	0
29 Georgetown University	37,351	0	3,322	389	579	29,642	54	3,365	0
30 CUNY Mt Sinai Sch of Med	37,233	0	0	0	0	37,233	0	0	0
Total, 1st 30 insts.	3,235,442	513,787	452,896	197,588	263,937	1,692,467	39,511	54,438	20,818
31 Brown University	34,506	5,357	4,817	3,499	6,670	12,956	994	213	0
32 Wake Forest University	28,511	0	124	0	48	28,334	0	0	5
33 Dartmouth College	27,222	3,670	2,155	495	242	20,537	31	92	0
34 University of Dayton	26,650	17,382	3,287	27	633	424	2,562	118	2,217
35 George Washington Univ	25,220	4,766	700	35	5,142	14,279	83	162	53
36 Tulane University	24,095	578	413	61	445	22,147	88	287	76
37 Medical College of Wis	21,432	0	0	0	0	21,432	0	0	0
38 Thomas Jefferson Univ	21,311	0	0	0	0	21,311	0	0	0
39 Syracuse University	20,367	6,357	3,312	136	4,474	4,555	524	956	53
40 Rensselaer Polytech Inst	19,143	11,674	3,993	578	1,869	847	102	80	0
Total, 1st 40 insts.	3,483,899	563,571	471,697	202,419	283,460	1,839,289	43,895	56,346	23,222
41 Brandeis University	19,080	0	2,733	0	713	10,685	1,090	3,859	0
42 Rice University	16,340	3,132	5,839	1,808	3,666	1,693	183	19	0
43 University of Notre Dame	13,209	1,662	9,376	0	424	1,460	189	92	6
44 Howard University	12,401I	1,422I	2,803I	112I	31I	7,430I	59I	544I	0I
45 St Louis University	12,272	0	0	578	5	11,688	0	1	0
46 The Medical Col of Penna	11,514	0	0	0	0	11,514	0	0	0
47 Northeastern University	10,201	3,127	2,606	0	834	2,852	525	257	0
48 New York Medical College	10,021	0	0	0	0	10,021	0	0	0
49 Lehigh University	9,925	6,186	2,802	171	100	299	187	180	0
50 Hahnemann University	7,809	0	0	0	0	7,478	331	0	0
Total, 1st 50 insts.	3,606,671	579,100	497,856	205,088	289,233	1,904,409	46,459	61,298	23,228

See footnotes at end of table.

Table B-40. Federally financed R&D expenditures at private universities and colleges, by science/engineering field: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
51 Rush University	7,582	0	0	0	0	7,159	423	0	0
52 Albany Medical College	7,259	0	0	0	0	7,259	0	0	0
53 Eastern VA Medical School	6,887	0	0	0	0	6,887	0	0	0
54 University of Denver	6,825	3,071	2,246	0	0	394	896	218	0
55 Polytechnic University	6,824	5,661	900	0	191	0	0	72	0
56 Oregon Graduate Institute	6,582	1,106	2,410	1,595	1,471	0	0	0	0
57 Meharry Medical College	6,397	0	0	0	0	6,397	0	0	0
58 Drexel University	6,371	3,336	1,451	1,278	143	148	0	15	0
59 Southern Methodist Univ	6,244	384	439	3,913	842	191	97	378	0
60 Catholic Univ of America	6,077	1,508	3,640	0	14	224	638	53	0
Total, 1st 60 insts.	3,673,719	594,166	508,942	211,874	291,894	1,933,068	48,513	62,034	23,228
61 Loyola Univ - Chicago	6,051	0	240	0	56	4,695	585	475	0
62 Boston College	5,824	0	2,207	567	2,372	438	81	159	0
63 Tuskegee University	4,967	923I	319I	0I	128I	3,554I	11I	32I	0I
64 Brigham Young University	4,785	3,231I	837I	65I	73I	459I	0I	120I	0I
65 Clarkson University	4,359	2,041	814	0	425	294	0	0	785
66 Morehouse School of Med	4,238	0	0	0	0	4,238	0	0	0
67 Illinois Inst of Tech	3,947	2,321	883	436	103	187	17	0	0
68 American University	3,480	0	914	0	38	1,410	139	979	0
69 U Hlth Sci/Chcgo Med Sch	3,269	0	0	0	0	3,126	143	0	0
70 Chas R Drew U of Med & Sc	2,898	0	0	0	0	2,281	0	617	0
Total, 1st 70 insts.	3,717,537	602,682	515,156	212,942	295,089	1,953,750	49,489	64,416	24,013
71 Stevens Institute of Tech	2,532	2,006	526	0	0	0	0	0	0
72 Texas Col of Osteo Med	2,518	0	0	0	0	2,518	0	0	0
73 Worcester Poly Institute	2,411	1,777	174	0	334	126	0	0	0
74 Creighton University	2,386	0	0	0	0	2,386	0	0	0
75 Fairleigh Dickinson Univ	2,355	0I	0I	2,230I	0I	118I	0I	7I	0I
76 Loma Linda University	2,294	0	0	3	0	2,291	0	0	0
77 Wesleyan University	2,193	0	998	9	144	990	30	22	0
78 Hampton University	2,168	173	1,529	0	400	24	0	42	0
79 Fordham University	2,063	190	9	0	366	670	13	815	0
80 Mercer University	1,812	1,542	0	28	0	242	0	0	0
Total, 1st 80 insts.	3,740,269	608,370	518,392	215,212	296,333	1,963,115	49,532	65,302	24,013
81 Cal Sch Prof Psych-Fresno	1,566	0	0	0	0	0	1,566	0	0
82 Marquette University	1,487	357	399	0	9	692	0	0	30
83 Cal Sch Prof Psych-L A	1,383	0	0	0	0	0	1,383	0	0
84 Wentworth Inst of Tech	1,383	0	0	1,383	0	0	0	0	0
85 Inst Paper Sci and Tech	1,382	965I	417I	0I	0I	0I	0I	0I	0I
86 Xavier University of LA	1,294	0	383	0	0	911	0	0	0
87 Seton Hall University	1,236I	0I	407I	0I	0I	0I	829I	0I	0I
88 Fisk University	1,131	0	781	0	11	339	0	0	0
89 Amherst College	1,047	0	534	0	3	491	12	7	0
90 University of the Pacific	990	171	24	0	0	795	0	0	0
Total, 1st 90 insts.	3,753,168	609,863	521,337	216,595	296,356	1,966,343	53,322	65,309	24,043
91 Nova University	981	0	99	878	0	0	0	0	4E
92 University of Tulsa	926	180	10	251	52	277	156	0	0
93 Smith College	903	0	10	529	62	144	155	3	0
94 Florida Inst of Tech	898	116	36	160	35	551	0	0	0
95 Villanova University	885	181	120	0	27	333	224	0	0
96 Selma University	816	0	37	0	215	298E	0	55E	211
97 Clark University	794	0	624	18	81	56	15	0	0
98 Tougaloo College	787	0	265	0	2	520	0	0	0
99 Ponce School of Medicine	782	0	0	0	0	782	0	0	0
100 De Paul University	772	0	162	0	44	93	473	0	0
Total, 1st 100 insts.	3,761,712	610,340	522,700	218,431	296,874	1,969,397	54,345	65,367	24,258
Total, all other sampled insts.	14,171	983	2,965	201	712	7,265	1,778	141	126
Estimated total non-sampled insts.	13,977	82	3,591	4,067	657	3,738	1,803	40	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-41. Total and federally financed R&D expenditures at historically black colleges and universities: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	124,764	93,889	73,759	71,832	98,968	75,789	61,230	60,665
1 Howard University	20,097I	18,301I	16,615	16,305	12,401I	11,391I	10,308	10,258E
2 Florida A & M University	14,171	12,079	9,364	8,401I	10,509	8,674	8,100	7,683I
3 NC Ag & Tech State Univ	6,706	6,401	4,461	5,754	5,752	5,717	3,603	4,763
4 Meharry Medical College	6,564	5,228	4,797	4,137I	6,397	5,125	4,414	3,759I
5 Alabama A & M University	6,272	6,140	4,534	3,986I	4,801	5,121	4,356	3,830I
6 Tuskegee University	5,348	3,752	2,752	1,787I	4,967	3,543	2,598	1,689I
7 U of the Virgin Islands	4,734	4,666	2,386E	1,760	2,600	2,578	1,447E	1,043
8 Morehouse School of Med	4,320	2,222	0I	0I	4,238	1,815	0	0I
9 Southern U & A&M College	3,967	3,451	2,196	2,845	3,233	3,112	2,196	2,715
10 Jackson State University	3,747	3,403	2,260	2,076I	3,624	2,801	2,040	1,862I
Total, 1st 10 insts.	75,926	65,643	49,365	47,051	58,522	49,877	39,062	37,602
11 Tennessee State Univ	3,442	3,408	2,719	2,661	3,382	3,382	2,717	2,660
12 U of MD Eastern Shore	2,944	1,736	1,522	1,615	2,203	1,736	1,522	1,606
13 Lincoln University	2,901	NA	NA	NA	2,706	NA	NA	NA
14 Virginia State University	2,620	2,476	2,356I	2,236I	2,056	2,476	2,326I	2,176I
15 Langston University	2,349	NA	NA	NA	1,961	NA	NA	NA
16 University of D C	2,188I	1,973	1,485	2,37[illegible]	1,289I	1,205	738	1,706
17 Fort Valley State College	2,173	NA	NA	NA	1,741	NA	NA	NA
18 Hampton University	2,168	NA	NA	NA	2,168	NA	NA	NA
19 Prairie View A & M Univ	2,157	1,741E	1,498	2,015I	1,907	1,560E	1,334	1,824I
20 Alcorn State University	1,850	1,692E	1,623I	1,554I	1,850	1,692I	1,623I	1,554I
Total, 1st 20 insts.	100,718	78,669	60,568	59,503	79,785	61,928	49,322	49,128
21 Albany State College	1,725	366	263	207I	653	348	263E	207I
22 Kentucky State University	1,721	1,697	1,856	1,656I	1,721	1,697	1,827	1,636I
23 Texas Southern Univ	1,519	1,703	1,491I	1,279I	1,293	1,419	1,263I	1,107I
24 Xavier University of LA	1,294	NA	NA	NA	1,294	NA	NA	NA
25 Tougaloo College	1,191	NA	NA	NA	787	NA	NA	NA
26 Fisk University	1,157	1,741	862	732I	1,131	1,379	777	661I
27 Univ of Ark Pine Bluff	1,148	1,199	1,047	1,010	1,148	1,199	1,047	1,010
28 Morehouse College	1,093	NA	NA	NA	350	NA	NA	NA
29 Delaware State College	1,027	NA	NA	NA	920	NA	NA	NA
30 South Carolina St College	883I	796	878I	955I	771I	721	810I	899I
Total, 1st 30 insts.	113,476	86,171	66,965	65,342	89,853	68,691	55,309	54,648
31 Coppin State College	834	NA	NA	NA	388	NA	NA	NA
32 Selma University	816	NA	NA	NA	816	NA	NA	NA
33 Central State University	673	NA	NA	NA	449	NA	NA	NA
34 Norfolk State University	652	425	304	456	648	400	266	456
35 Winston-Salem State Univ	650	NA	NA	NA	650	NA	NA	NA
36 Morgan State University	649	742E	635	886	638	742E	346	860
37 North Carolina Cntrl Univ	555E	571	515I	464I	422E	350	317I	286I
38 Benedict College	503	NA	NA	NA	503	NA	NA	NA
39 Southern Univ-New Orleans	500	NA	NA	NA	420E	NA	NA	NA
40 Johnson C. Smith Univ	480	NA	NA	NA	480	NA	NA	NA
Total, 1st 40 insts.	119,788	87,909	68,419	67,148	95,267	70,183	56,238	56,250
41 Dillard University	469	0	0	0I	0	0	0	0I
42 Alabama State University	456	NA	NA	NA	456	NA	NA	NA
43 Bethune Cookman College	440	NA	NA	NA	420	NA	NA	NA
44 Shaw University	430	NA	NA	NA	98	NA	NA	NA
45 Spelman College	399	NA	NA	NA	272	NA	NA	NA
46 Talladega College	366	NA	NA	NA	350	NA	NA	NA
47 Bennett College	364	NA	NA	NA	229	NA	NA	NA
48 Fayetteville State Univ	360	NA	NA	NA	258	NA	NA	NA
49 Lincoln University (PA)	349	867	648I	432I	319	789	591I	394I
50 Rust College	214	NA	NA	NA	214	NA	NA	NA
Total, 1st 50 insts.	123,635	88,776	69,067	67,580	97,883	70,972	56,829	56,644

See footnotes at end of table.

Table B-41. Total and federally financed R&D expenditures at historically black colleges and universities: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 Savannah State College	179	NA	NA	NA	179	NA	NA	NA
52 Philander Smith College	165	NA	NA	NA	154	NA	NA	NA
53 Morris Brown College	164	NA	NA	NA	164	NA	NA	NA
54 Southern Univ-Shreveport	148	NA	NA	NA	148	NA	NA	NA
55 Grambling State Univ	106	64	136	137I	106	64	128	131I
56 Stillman College	104	NA	NA	NA	104	NA	NA	NA
57 West Virginia State Col	81	NA	NA	NA	75	NA	NA	NA
58 Jarvis Christian College	60	NA	NA	NA	60	NA	NA	NA
59 Knoxville College	60	NA	NA	NA	50	NA	NA	NA
60 Elizabeth City State Univ	26	NA	NA	NA	26	NA	NA	NA
Total, 1st 60 insts.	124,728	88,840	69,203	67,717	98,949	71,036	56,957	56,775
61 Trenholm State Tech Col	22	NA	NA	NA	5	NA	NA	NA
62 Miss Valley State Univ	14	31	0	0I	14	31	0	0I
63 Bowie State University	0	NA	NA	NA	0	NA	NA	NA
64 Cheyney University of PA	0E	NA	NA	NA	0E	NA	NA	NA
65 Claflin College	0E	NA	NA	NA	0E	NA	NA	NA
66 Clark Atlanta University	0E	NA	NA	NA	0E	NA	NA	NA
67 Oakwood College	0	NA	NA	NA	0	NA	NA	NA
68 Paul Quinn College	0	NA	NA	NA	0	NA	NA	NA
69 Voorhees College	0	NA	NA	NA	0	NA	NA	NA
70 Wiley College	0	NA	NA	NA	0	NA	NA	NA
Total, 1st 70 insts.	124,764	88,871	69,203	67,717	98,968	71,067	56,957	56,775
Total, all other sampled insts.	0	5,018	4,556	4,115	0	4,722	4,273	3,890

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-42. Total and federally financed R&D expenditures in engineering at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	2,387,593	2,091,190	1,887,492	1,638,228	1,379,664	1,225,026	1,108,567	975,859
1 Johns Hopkins Univ	209,748	162,390	172,790	138,379E	206,629	159,976	170,869	136,602
2 Mass Inst of Technology	116,367	107,281	110,835	107,892	80,356	77,811	80,331	77,083
3 Georgia Institute of Tech	116,109	95,484	84,329	72,683	65,178	52,700	44,239	40,272
4 Pennsylvania State Univ	97,276	82,807	68,326	54,723	59,260	54,583	45,736	36,750
5 Stanford University	78,311	75,828	68,008	63,872	65,502	63,486	56,610	55,395
6 Univ of Ill Urbana	58,003	58,693	51,825	42,382	37,780	39,175	33,585	26,099
7 Texas A & M University	52,541	37,517	34,314	38,475E	14,743	11,441	8,467	9,915
8 Univ of Texas at Austin	50,944	46,086	44,682	31,187	22,894	21,150	21,489	13,029
9 Univ of Cal Berkeley	47,393	42,432	39,888	36,454	28,936	25,371	24,446	22,488
10 University of Michigan	46,866	42,808	35,850	30,516	27,507	24,633	18,566	16,234
Total, 1st 10 insts.	873,558	751,326	710,847	616,563	608,785	530,326	504,338	433,867
11 Univ of MD College Park	41,624	37,807	34,532	19,968	15,655	15,397	15,881	8,132
12 Cornell University	38,648	39,822	36,439	32,605	22,630	24,232	21,592	21,241
13 VA Polytech Inst & St U	36,123	30,282	26,916	23,989	17,234	14,436	13,443	12,057
14 Univ of Wis-Madison	34,697	32,287	30,076	25,344	21,745	21,125	18,810	14,699
15 N C State Univ at Raleigh	34,421	31,219	24,068	18,956	11,209	9,823	8,132	6,145
16 Purdue University	32,873	32,206	30,371	26,134	18,733	19,612	19,104	17,258
17 New Mexico State Univ	30,060	27,195	16,370	14,706	27,538	25,023	14,905	13,249
18 Univ. Of Tennessee System	29,852	23,623	20,193	18,062	18,788	14,431	12,319	11,690
19 Ohio State University	29,821	28,723	24,993	21,155	12,567	12,180	10,758	9,782
20 University of Minnesota	27,709	24,184	23,161	21,118	10,421	8,890	8,280	8,594
Total, 1st 20 insts.	1,209,386	1,058,674	977,966	838,600	785,305	695,475	647,562	556,714
21 University of Florida	27,162	21,526	19,751	16,669	13,379	9,325	8,258	7,911
22 Rensselaer Polytech Inst	27,106	25,095	18,434	16,154I	11,674	12,592	10,403	9,886I
23 Carnegie-Mellon Univ	25,982	25,548	21,770	19,498	14,934	14,005	11,863	8,577
24 Iowa St U of Sci & Tech	25,225	20,292	18,402	15,029	8,821	7,734	4,458	3,031
25 Univ of Southern Cal	24,525	23,480	20,141	14,769	16,495	17,280	15,336	12,438
26 Utah State University	23,852	18,763	5,243	3,727	21,007	15,352	3,624	2,786
27 University of Rochester	23,768	18,897	18,613	16,328	19,943	15,714	13,746	12,643
28 Univ of Cal Los Angeles	22,975	21,497	19,929	23,078	16,679	15,733	14,141	16,466
29 Princeton University	20,957	17,964	15,084	12,309	10,508	10,521	9,873	8,310
30 University of Dayton	20,861	19,615	19,917	18,198	17,382	16,262	16,784	15,648
Total, 1st 30 insts.	1,451,799	1,271,351	1,155,250	994,359	936,127	829,993	756,048	654,410
31 Univ of South Florida	20,480	2,141	1,886	1,203	15,155	262	364	594
32 University of Connecticut	20,039	11,549	8,310	6,973	3,498	2,337	1,746	1,342
33 SUNY at Buffalo	19,630	17,874	7,591	6,116	6,486	8,321	4,203	3,014
34 Rutgers the St Univ of NJ	19,463	15,296	14,925	11,408	3,680	2,423	1,997	1,465
35 Lehigh University	18,214	18,949	16,995	13,110	6,186	6,449	5,866	3,883
36 Case Western Reserve Univ	18,089	16,062	14,104	14,433E	13,173	10,911	10,072	10,243
37 Auburn University	16,996	15,775	15,290	10,183	7,664	9,124	7,166	5,039
38 University of Washington	16,738	16,374	19,101	17,713	10,581	11,296	10,453	10,765
39 California Inst of Tech	16,670	17,124	14,436	14,531	13,641	14,516	12,357	10,610
40 N Mex Inst Mining & Tech	16,325	15,114	20,335	13,236	4,378	3,874	7,451	5,481
Total, 1st 40 insts.	1,634,443	1,417,609	1,288,223	1,103,265	1,020,569	899,506	817,723	706,846
41 University of Utah	15,959	13,106	9,970	8,671	9,365	7,795	5,297	6,601
42 Univ. of Colorado	15,613	12,523	7,969	5,994	10,816	8,248	5,010	3,817
43 Columbia Univ Main Div	15,429	15,677	12,806	10,781	9,386	12,747	9,743	8,198
44 Univ of Cal Santa Barbara	15,237	13,461	11,377	7,214	12,352	11,178	9,251	5,029
45 University of New Mexico	14,763	14,220	19,444	28,098	7,444	8,333	13,762	22,784
46 Northwestern University	14,728	13,422	11,032	9,057	8,200	7,512	6,545	5,654
47 Arizona State University	14,642	14,991	17,317	12,833	5,742	5,745	5,177	3,774
48 University of Virginia	14,382	12,301	10,688	9,708	7,621	6,184	5,669	4,762
49 Clemson University	14,179	13,212	11,602	8,698	3,239	3,114	2,035	1,475
50 Colorado State University	13,853	13,151	10,344	9,014	10,472	10,328	7,866	6,356
Total, 1st 50 insts.	1,783,228	1,553,673	1,410,772	1,213,333	1,105,206	980,690	888,078	775,296

See footnotes at end of table.

Table B-42. Total and federally financed R&D expenditures in engineering at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 Louisiana State Univ	13,216	11,911	8,480	8,077	2,979	2,144	2,129	2,299
52 University of Cincinnati	12,911	11,037	9,636	6,943	5,956	5,429	5,176	3,791
53 University of Arizona	12,583	10,473	9,912	10,249	6,114	4,398	4,464	4,925
54 Syracuse University	11,575	6,863	4,985	10,370	6,357	3,170	2,147	5,908
55 Michigan State University	11,494	10,139	9,264	7,199	3,604	3,250	3,224	2,584
56 Univ of Missouri Rolla	11,435	12,812	9,881	9,814	2,315	2,697	3,161	2,961
57 University of Kentucky	11,336	6,661	4,383	4,363	3,032	1,749	1,842	1,679
58 Drexel University	11,101	10,390	10,459	9,437	3,336	4,007	5,318	4,342
59 University of Delaware	10,874	9,596	11,699	10,454	4,461	4,025	4,954	4,329
60 Univ Alabama Huntsville	10,156	6,298	5,349	4,205	6,519	4,272	3,316	2,453
Total, 1st 60 insts.	1,899,909	1,649,853	1,494,820	1,294,444	1,149,879	1,015,831	923,809	810,567
61 Mississippi State Univ	10,145	6,774	6,024	6,040	6,791	3,953	3,404	3,638
62 Univ of Pennsylvania	9,981	8,878	8,745	9,495	6,439	5,743	4,808	5,239
63 Oklahoma State University	9,812	7,715	5,853	7,208E	3,577	1,691	1,196	2,219E
64 Woods Hole Ocngrphic Inst	9,445	11,600	9,716	9,341	7,290	8,600	8,263	8,980
65 Texas Tech University	8,930	7,485	6,721	6,495	3,432	2,840	2,508	3,024
66 Michigan Tech University	8,861	8,642	7,701	7,188	2,483	3,349	2,538	2,212
67 Univ of Massachusetts	8,814	7,428	6,557	6,128	4,142	3,777	3,286	3,075
68 University of Iowa	8,710	8,845	6,162	5,469	3,833	3,678	3,297	2,773
69 University of Oklahoma	8,529	6,783	5,380	5,495	2,247	2,152	1,543	1,767
70 University of N Dakota	8,210	7,583	7,151	4,682I	6,056	5,702	5,512	3,725I
Total, 1st 70 insts.	1,991,346	1,731,586	1,564,830	1,361,985	1,196,169	1,057,316	960,164	847,219
71 U of Houston	8,020	6,725	7,359	7,098	3,137	2,999	2,609	2,763
72 Polytechnic University	8,013	6,071	6,657	4,744	5,661	4,305	4,613	3,519E
73 Univ of Nebraska-Lincoln	7,253	4,649	3,613	3,174	991	1,000	709	834
74 Univ of Cal Davis	7,124	6,402	5,546	4,613	4,015	4,224	3,645	3,282
75 Univ of Rhode Island	6,916I	6,715	3,106	4,274I	3,138I	3,284	1,910	2,118I
76 West Virginia University	6,894	6,153	5,383	5,274	3,211	2,755	2,316	2,206
77 University of Idaho	6,477	6,032	4,143	2,980	3,755	3,113	2,119	1,184
78 Brown University	6,382	6,205	6,460	5,341	5,357	5,525	5,725	4,840
79 Univ of Cal San Diego	6,373	4,488	3,775	2,885	4,634	2,806	1,611	1,075
80 University of Louisville	6,223I	11,771I	12,220I	7,708E	894I	817I	678I	481
Total, 1st 80 insts.	2,061,021	1,796,797	1,623,092	1,410,076	1,230,962	1,088,144	986,099	869,521
81 University of Pittsburgh	6,201	5,498	5,908	5,175	2,910	2,590	3,185	2,634
82 Yale University	6,052	5,794	6,123	6,206E	4,228	4,079	4,038	4,857E
83 George Washington Univ	6,039	5,460	4,798	4,608I	4,766	4,558E	4,020	3,993I
84 Univ of Ill Chicago	5,939	4,940	4,496	3,541	2,247	1,588	1,879	1,588
85 Univ of Ark Fayetteville	5,818	4,146	4,576	4,478	1,787	1,085	993	1,149
86 Vanderbilt University	5,798	5,219	3,693	2,927	3,793	2,555	1,884	1,561
87 Univ of Missouri Columbia	5,653	4,682	3,930	4,157	1,034	805	761	869
88 Tenn Technological Univ	5,599	6,336E	5,875	4,058I	246	235	159	170I
89 The University of Alabama	5,555	5,884	3,837	3,418	2,514	3,064	1,703	1,118
90 SUNY Col of Env Sci & For	5,465	3,843	3,066	3,162I	194	140	45	110I
Total, 1st 90 insts.	2,119,140	1,848,599	1,669,394	1,451,806	1,254,681	1,108,843	1,004,766	887,570
91 Duke University	5,407	3,233	2,812	2,834	3,744	2,103	1,486	1,554
92 Oregon State University	5,130	6,302	5,115	4,380I	2,902	3,714	2,792	1,944I
93 Brigham Young University	5,127I	5,308	5,242	4,131I	3,231I	3,819	3,151	2,106I
94 Illinois Inst of Tech	4,866	4,585	5,045	3,408	2,321	2,641	3,370	1,972
95 Rice University	4,842	3,910	3,447I	3,132I	3,132	2,409	2,251I	2,054I
96 Dartmouth College	4,781	4,964	4,989	3,901I	3,670	3,429	3,536	2,629I
97 Wayne State University	4,700	3,625	3,635	2,580	1,740	1,352	1,166	1,168
98 Univ of Alaska Fairbanks	4,674	4,110E	3,313I	3,097I	1,617	1,422E	1,036I	901I
99 Kans St U - Ag & App Sci	4,651	3,914	3,993	4,575	1,429	872	777	1,370
100 Ohio University	4,611	4,302	3,702	3,706	1,794	2,043	1,531	1,591
Total, 1st 100 insts.	2,167,929	1,892,852	1,710,687	1,487,550	1,280,261	1,132,647	1,025,862	904,859
Total, all other sampled insts.	198,445	198,338	176,805	150,678	90,644	92,379	82,705	71,000
Estimated total non-sampled insts.	21,219	0	0	0	8,759	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-43. R&D expenditures in engineering subfields at universities and colleges: fiscal year 1989

[Dollars in thousands]

Institution ranking	Engineering subfields						
	Total	Aero/ astro- nautical	Chemical	Civil	Elec- trical	Mechan- ical	Other
Total, all institutions	2,387,593	146,548	185,087	249,552	600,017	340,280	866,110
1 Johns Hopkins Univ	209,748	21,040	4,842	3,539	64,588	42,579	73,160
2 Mass Inst of Technology	116,367	11,947	13,493	9,360	35,942	15,088	30,537
3 Georgia Institute of Tech	116,109	8,735	2,124	3,844	67,613	15,159	18,634
4 Pennsylvania State Univ	97,276	937	2,674	4,945	3,758	8,652	76,310
5 Stanford University	78,311	5,566	2,939	3,751	31,498	10,050	24,507
6 Univ of Ill Urbana	58,003	880	1,433	6,098	10,753	6,282	32,557
7 Texas A & M University	52,541	4,214	4,159	20,052	5,863	6,221	12,032
8 Univ of Texas at Austin	50,944	5,471	6,109	12,548	7,096	14,597	5,123
9 Univ of Cal Berkeley	47,393	284	1,541	8,297	25,454	3,402	8,415
10 University of Michigan	46,866	2,774	2,207	2,847	15,761	7,416	15,861
Total, 1st 10 insts.	873,558	61,848	41,521	75,281	268,326	129,446	297,136
11 Univ of MD College Park	41,624	2,244	4,548	3,491	10,247	5,908	15,186
12 Cornell University	38,648	3,691	2,206	4,760	7,155	1,334	19,502
13 VA Polytech Inst & St U	36,123	2,866	1,907	4,057	6,480	7,778	13,035
14 Univ of Wis-Madison	34,697	0	3,839	1,027	7,043	1,825	20,963
15 N C State Univ at Raleigh	34,421	643	3,304	1,425	8,423	4,000	16,626
16 Purdue University	32,873	1,607	2,042	3,270	6,702	6,755	12,497
17 New Mexico State Univ	30,060	21,722	83	484	7,000	577	194
18 Univ. Of Tennessee System	29,852	2,493	1,115	8,562	1,849	590	15,243
19 Ohio State University	29,821	1,270	855	1,452	5,479	4,080	16,685
20 University of Minnesota	27,709	999	8,403	7,446	2,355	3,981	4,525
Total, 1st 20 insts.	1,209,386	99,383	69,823	111,255	331,059	166,274	431,592
21 University of Florida	27,162	938	1,273	4,076	4,100	1,414	15,361
22 Rensselaer Polytech Inst	27,106	0	1,477	1,827	7,202	6,897	9,703
23 Carnegie-Mellon Univ	25,982	0	1,612	1,536	7,455	1,460	13,919
24 Iowa St U of Sci & Tech	25,225	733	1,040	3,792	5,445	2,138	12,077
25 Univ of Southern Cal	24,525	3,002	562	1,097	8,998	500	10,366
26 Utah State University	23,852	0	0	1,656	20,086	946	1,164
27 University of Rochester	23,768	0	409	0	1,405	16,040	5,914
28 Univ of Cal Los Angeles	22,975	0	2,238	1,587	8,343	6,779	4,028
29 Princeton University	20,957	9,705	2,367	3,510	5,321	0	54
30 University of Dayton	20,861	3,149	12	449	623	4,666	11,962
Total, 1st 30 insts.	1,451,799	116,910	80,813	130,785	400,037	207,114	516,140
31 Univ of South Florida	20,480	0	250	2,251	17,810	169	0
32 University of Connecticut	20,039	0	571	3,479	1,338	905	13,746
33 SUNY at Buffalo	19,630	0	1,739	10,220	3,566	2,824	1,281
34 Rutgers the St Univ of NJ	19,463	0	2,034	176	384	1,911	14,958
35 Lehigh University	18,214	0	2,742	4,714	2,109	3,489	5,160
36 Case Western Reserve Univ	18,089	0	3,378	604	3,722	3,629	6,756
37 Auburn University	16,996	347	2,217	722	1,429	2,071	10,210
38 University of Washington	16,738	1,858	2,022	3,343	2,223	1,243	6,049
39 California Inst of Tech	16,670	3,488	2,047	746	2,061	448	7,880
40 N Mex Inst Mining & Tech	16,325	0	2,017	0	0	0	14,308
Total, 1st 40 insts.	1,634,443	122,603	99,830	157,040	434,679	223,803	596,488
41 University of Utah	15,959	0	1,073	174	1,654	3,674	9,384
42 Univ. of Colorado	15,613	3,513	1,133	2,829	6,787	1,351	0
43 Columbia Univ Main Div	15,429	0	5,308	874	4,732	458	4,057
44 Univ of Cal Santa Barbara	15,237	0	1,880	0	3,822	912	8,623
45 University of New Mexico	14,763	45	802	8,389	1,812	678	3,037
46 Northwestern University	14,728	0	1,272	2,207	1,063	748	9,438
47 Arizona State University	14,642	11	1,297	1,775	5,499	2,455	3,605
48 University of Virginia	14,382	551	992	591	2,367	1,464	8,417
49 Clemson University	14,179	0	1,033	1,856	2,189	2,280	6,821
50 Colorado State University	13,853	0	1,277	7,894	2,464	1,188	1,030
Total, 1st 50 insts.	1,783,228	126,723	115,897	183,629	467,068	239,011	650,900

See footnotes at end of table.

Table B-43. R&D expenditures in engineering subfields at universities and colleges: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Engineering subfields						
	Total	Aero/ astro- nautical	Chemical	Civil	Elec- trical	Mechan- ical	Other
51 Louisiana State Univ	13,216	0	2,015	2,267	1,324	2,140	5,470
52 University of Cincinnati	12,911	1,465	1,570	4,915	2,591	1,160	1,210
53 University of Arizona	12,583	1,925	566	888	2,766	0	6,438
54 Syracuse University	11,575	0	1,115	891	8,194	1,298	77
55 Michigan State University	11,494	0	46	7	0	0	11,441
56 Univ of Missouri Rolla	11,435	320	804	865	1,310	1,689	6,447
57 University of Kentucky	11,336	0	339	256	27	1,049	9,665
58 Drexel University	11,101	0	210	924	4,327	2,431	3,209
59 University of Delaware	10,874	0	3,147	501	2,433	217	4,576
60 Univ Alabama Huntsville	10,156	0	1,117	41	2,555	4,100	2,343
Total, 1st 60 insts.	1,899,909	130,433	126,826	195,184	492,595	253,095	701,776
61 Mississippi State Univ	10,145	2,061	227	242	1,685	194	5,736
62 Univ of Pennsylvania	9,981	0	4,355	854	2,040	748	1,984
63 Oklahoma State University	9,812	27	370	2,789	743	1,477	4,406
64 Woods Hole Ocngrphic Inst	9,445	676I	698I	740I	2,326I	2,051I	2,954I
65 Texas Tech University	8,930	0	453	926	3,489	841	3,221
66 Michigan Tech University	8,861	0	658	1,330	209	2,112	4,552
67 Univ of Massachusetts	8,814	0	1,936	1,056	2,987	1,950	885
68 University of Iowa	8,710	390I	634I	971I	1,510I	1,225I	3,980I
69 University of Oklahoma	8,529	0	2,189	1,848	1,851	1,201	1,440
70 University of N Dakota	8,210	0	24	0	0	0	8,186
Total, 1st 70 insts.	1,991,346	133,587	138,370	205,940	509,435	264,894	739,120
71 U of Houston	8,020	0	2,396	1,291	1,625	2,007	701
72 Polytechnic University	8,013	391	1,303	142	5,680	45	452
73 Univ of Nebraska-Lincoln	7,253	0	179	815	1,080	1,260	3,919
74 Univ of Cal Davis	7,124	0	1,138	1,208	1,859	2,151	768
75 Univ of Rhode Island	6,916I	0I	262I	458I	714I	2,238I	3,244I
76 West Virginia University	6,894	0	733	934	667	2,275	2,285
77 University of Idaho	6,477	0	302	292	1,866	177	3,840
78 Brown University	6,382	458I	481I	500I	1,605I	1,334I	2,004I
79 Univ of Cal San Diego	6,373	0	0	0	0	4,907	1,466
80 University of Louisville	6,223I	1I	9I	54I	600I	21I	5,538I
Total, 1st 80 insts.	2,061,021	134,437	145,173	211,634	525,131	281,309	763,337
81 University of Pittsburgh	6,201	0	1,866	557	443	540	2,795
82 Yale University	6,052	0	1,566	0	1,230	1,154	2,102
83 George Washington Univ	6,039	1,108	120	591	717	95	3,408
84 Univ of Ill Chicago	5,939	0	724	933	2,424	1,163	695
85 Univ of Ark Fayetteville	5,818	0	1,655	574	924	1,050	1,615
86 Vanderbilt University	5,798	0	198	1,155	1,511	947	1,987
87 Univ of Missouri Columbia	5,653	0	321	282	394	736	3,920
88 Tenn Technological Univ	5,599	0	21	1,775	1,393	2,314	96
89 The University of Alabama	5,555	1,153	517	494	468	1,263	1,660
90 SUNY Col of Env Sci & For	5,465	0	987	67	0	0	4,411
Total, 1st 90 insts.	2,119,140	136,698	153,148	218,062	534,635	290,571	786,026
91 Duke University	5,407	0	0	437	879	868	3,223
92 Oregon State University	5,130	0	142	1,622	590	1,360	1,416
93 Brigham Young University	5,127I	0I	2,867I	436I	470I	590I	764I
94 Illinois Inst of Tech	4,866	0	1,613	151	436	1,569	1,097
95 Rice University	4,842	0	813	239	2,416	506	868
96 Dartmouth College	4,781	342I	360I	378I	1,193I	1,003I	1,505I
97 Wayne State University	4,700	0	706	215	374	955	2,450
98 Univ of Alaska Fairbanks	4,674	0	0	881	723	560	2,510
99 Kans St U - Ag & App Sci	4,651	0	343	309	393	286	3,320
100 Ohio University	4,611	0	204	471	2,996	509	431
Total, 1st 100 insts.	2,167,929	137,040	160,196	223,201	545,105	298,777	803,610
Total, all other sampled insts.	198,445	7,861	24,101	23,139	47,429	38,755	57,160
Estimated total non-sampled insts.	21,219	1,647	790	3,212	7,483	2,748	5,340

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-44. Federally financed R&D expenditures in engineering subfields at universities and colleges: fiscal year 1989

[Dollars in thousands]

Institution ranking	Engineering subfields						
	Total	Aero/ astro- nautical	Chemical	Civil	Elec- trical	Mechan- ical	Other
Total, all institutions	1,379,664	113,109	92,947	104,108	388,700	209,711	471,089
1 Johns Hopkins Univ	206,629	20,877	4,352	2,295	64,279	42,394	72,432
2 Mass Inst of Technology	80,356	8,026	9,359	7,018	27,446	8,802	19,705
3 Stanford University	65,502	5,112	2,564	3,254	25,731	7,900	20,941
4 Georgia Institute of Tech	65,178	4,903	1,192	2,158	37,955	8,510	10,460
5 Pennsylvania State Univ	59,260	783	991	1,669	2,011	3,688	50,118
6 Univ of Ill Urbana	37,780	590	711	3,640	8,127	3,417	21,295
7 Univ of Cal Berkeley	28,936	284	1,073	2,087	17,507	2,604	5,381
8 New Mexico State Univ	27,538	21,384	30	156	5,570	299	99
9 University of Michigan	27,507	1,738	1,482	1,128	11,815	4,431	6,913
10 Univ of Texas at Austin	22,894	3,365	2,253	3,330	2,859	10,318	769
Total, 1st 10 insts.	621,580	67,062	24,007	26,735	203,300	92,363	208,113
11 Cornell University	22,630	2,318	1,250	1,636	3,365	1,194	12,867
12 Univ of Wis-Madison	21,745	0	2,096	241	4,701	801	13,906
13 Utah State University	21,007	0	0	851	19,492	188	476
14 University of Rochester	19,943	0	121	0	1,249	14,867	3,706
15 Univ. Of Tennessee System	18,788	906	178	5,122	1,349	482	10,751
16 Purdue University	18,733	1,215	1,245	1,187	4,343	3,365	7,378
17 University of Dayton	17,382	2,624	10	374	519	3,888	9,967
18 VA Polytech Inst & St U	17,234	2,037	692	990	2,040	4,266	7,209
19 Univ of Cal Los Angeles	16,679	0	1,597	968	6,295	5,793	2,026
20 Univ of Southern Cal	16,495	2,615	475	845	6,012	363	6,185
Total, 1st 20 insts.	812,216	78,777	31,671	38,949	252,665	127,570	282,584
21 Univ of MD College Park	15,655	1,054	1,514	448	5,545	1,752	5,342
22 Univ of South Florida	15,155	0	100	186	14,821	48	0
23 Carnegie-Mellon Univ	14,934	0	1,402	1,114	3,080	1,022	8,316
24 Texas A & M University	14,743	1,849	706	4,211	2,252	1,645	4,080
25 California Inst of Tech	13,641	3,169	1,635	725	1,603	418	6,091
26 University of Florida	13,379	657	1,111	197	2,416	554	8,444
27 Case Western Reserve Univ	13,173	0	2,104	480	2,252	3,092	5,245
28 Ohio State University	12,567	809	411	923	3,364	2,923	4,137
29 Univ of Cal Santa Barbara	12,352	0	1,580	0	2,735	596	7,441
30 Rensselaer Polytech Inst	11,674	0	606	647	2,709	2,164	5,548
Total, 1st 30 insts.	949,489	86,315	42,840	47,880	293,442	141,784	337,228
31 N C State Univ at Raleigh	11,209	607	861	443	3,015	1,707	4,576
32 Univ. of Colorado	10,816	2,933	697	2,100	3,898	1,188	0
33 University of Washington	10,581	1,636	1,097	1,312	816	848	4,872
34 Princeton University	10,508	6,116	1,103	868	2,416	0	5
35 Colorado State University	10,472	0	649	6,891	1,267	919	746
36 University of Minnesota	10,421	735	5,279	1,347	1,200	1,524	336
37 Columbia Univ Main Div	9,386	0	3,059	428	2,034	378	3,487
38 University of Utah	9,365	0	163	116	1,208	2,035	5,843
39 Iowa St U of Sci & Tech	8,821	274	190	856	1,768	560	5,173
40 Northwestern University	8,200	0	503	1,469	508	433	5,287
Total, 1st 40 insts.	1,049,268	98,616	56,441	63,710	311,572	151,376	367,553
41 Auburn University	7,664	106	754	140	361	1,003	5,300
42 University of Virginia	7,621	475	415	275	1,549	557	4,350
43 University of New Mexico	7,444	0	73	6,213	222	213	723
44 Woods Hole Ocngrphic Inst	7,290	523I	568I	575I	1,902I	1,412I	2,310I
45 Mississippi State Univ	6,791	294	157	119	1,318	142	4,761
46 Univ Alabama Huntsville	6,519	0	1,019	39	1,631	2,387	1,443
47 SUNY at Buffalo	6,486	0	819	3,773	1,084	545	265
48 Univ of Pennsylvania	6,439	0	3,452	123	1,194	342	1,328
49 Syracuse University	6,357	0	345	561	5,275	176	0
50 Lehigh University	6,186	0	523	2,552	300	1,105	1,706
Total, 1st 50 insts.	1,118,065	100,014	64,566	78,080	326,408	159,258	389,739

See footnotes at end of table.

Table B-44. Federally financed R&D expenditures in engineering subfields at universities and colleges: fiscal year 1989--Continued

[Dollars in thousands]

Institution ranking	Engineering subfields						
	Total	Aero/ astro- nautical	Chemical	Civil	Elec- trical	Mechan- ical	Other
51 University of Arizona	6,114	1,516	320	384	604	0	3,290
52 University of N Dakota	6,056	0	5	0	0	0	6,051
53 University of Cincinnati	5,956	950	436	3,226	679	372	293
54 Arizona State University	5,742	0	596	578	2,290	1,610	668
55 Polytechnic University	5,661	391	900	100	3,800	45	425
56 Brown University	5,357	385I	414I	424I	1,401I	1,038I	1,695I
57 George Washington Univ	4,766	1,074	120	524	497	95	2,456
58 Univ of Cal San Diego	4,634	0	0	0	0	4,306	328
59 University of Delaware	4,461	0	895	268	1,335	21	1,942
60 US Naval Postgrad School	4,407	1,354	0	0	1,576	1,191	286
Total, 1st 60 insts.	1,171,219	105,684	68,252	83,584	338,590	167,936	407,173
61 N Mex Inst Mining & Tech	4,378	0	366	0	0	0	4,012
62 Yale University	4,228	0	1,264	0	631	761	1,572
63 Univ of Massachusetts	4,142	0	1,134	250	2,015	582	161
64 Univ of Cal Davis	4,015	0	422	548	880	1,745	420
65 University of Iowa	3,833	218I	280I	434I	747I	551I	1,603I
66 Vanderbilt University	3,793	0	0	672	600	541	1,980
67 University of Idaho	3,755	0	82	136	932	54	2,551
68 Duke University	3,744	0	0	174	279	646	2,645
69 Rutgers the St Univ of NJ	3,680	0	722	68	76	1,460	1,354
70 Dartmouth College	3,670	264I	284I	291I	958I	710I	1,163I
Total, 1st 70 insts.	1,210,457	106,166	72,806	86,157	345,708	174,986	424,634
71 Michigan State University	3,604	0	0	7	0	0	3,597
72 Oklahoma State University	3,577	0	84	495	295	828	1,875
73 University of Connecticut	3,498	0	96	66	593	232	2,511
74 Texas Tech University	3,432	0	17	404	2,566	159	286
75 Drexel University	3,336	0	17	299	1,429	978	613
76 Clemson University	3,239	0	239	504	444	643	1,409
77 Brigham Young University	3,231I	0I	2,290I	256I	198I	279I	208I
78 West Virginia University	3,211	0	349	261	300	1,441	860
79 Old Dominion U Res Fdn	3,139	0	0	65	996	2,078	0
80 Univ of Rhode Island	3,138I	0I	31I	66I	381I	890I	1,770I
Total, 1st 80 insts.	1,243,862	106,166	75,929	88,580	352,910	182,514	437,763
81 U of Houston	3,137	0	994	527	590	917	109
82 Rice University	3,132	0	471	68	1,819	264	510
83 Northeastern University	3,127	0	11	28	2,986	46	56
84 University of Denver	3,071	0	440	0	800	1,831	0
85 San Diego State Univ	3,034	109	0	27	2,828	64	6
86 University of Kentucky	3,032	0	213	210	27	747	1,835
87 Louisiana State Univ	2,979	0	788	346	107	725	1,013
88 University of Pittsburgh	2,910	0	794	308	193	293	1,322
89 Oregon State University	2,902	0	48	1,225	382	690	557
90 Univ of Cal Irvine	2,524	0	0	325	906	1,282	11
Total, 1st 90 insts.	1,273,710	106,275	79,688	91,644	363,548	189,373	443,182
91 The University of Alabama	2,514	992	229	28	96	645	524
92 University of Wyoming	2,514	0	252	140	501	1,621	0
93 Michigan Tech University	2,483	0	148	235	61	1,051	988
94 NC Ag & Tech State Univ	2,470	0	137	1	314	944	1,074
95 Illinois Inst of Tech	2,321	0	783	38	163	965	372
96 Univ of Missouri Rolla	2,315	106	144	183	20	309	1,553
97 Univ of Ill Chicago	2,247	0	351	505	750	609	32
98 University of Oklahoma	2,247	0	505	643	550	236	313
99 University of Lowell	2,215	0	11	93	2,065	46	0
100 SUNY at Stony Brook	2,178	0	0	0	336	1,059	783
Total, 1st 100 insts.	1,297,214	107,373	82,248	93,510	368,404	196,858	448,821
Total, all other sampled insts.	73,691	4,335	10,286	9,808	16,204	12,293	20,765
Estimated total non-sampled insts.	8,759	1,401	413	790	4,092	560	1,503

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-45. R&D expenditures in the physical sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Physical sciences total				1989 subfields			
	1989	1988	1987	1986	Astronomy	Chemistry	Physics	Other
Total, all institutions	1,643,377	1,547,216	1,390,942	1,285,972	137,114	610,394	773,000	122,870
1 Mass Inst of Technology	89,915	84,630	78,800	77,582	8,701	15,031	66,183	0
2 Johns Hopkins Univ	85,843	96,702	79,371	67,725E	3,145	5,152	68,645	8,901
3 Stanford University	50,733	56,626	45,122E	40,770	0	10,098	6,135	34,500
4 University of Arizona	49,968	46,661	40,538	32,927	15,541	4,532	17,873	12,022
5 Univ of MD College Park	46,904	42,756	40,906	35,051	0	9,732	25,257	11,915
6 Univ of Cal Berkeley	44,998	42,434	37,824	34,524	5,878	12,663	26,457	0
7 Cornell University	43,228	42,461	42,839	40,616	4,545	10,217	25,895	2,571
8 California Inst of Tech	39,377	37,495	37,648	34,842	7,601	9,235	22,541	0
9 Univ of Texas at Austin	35,845	33,590	32,807	28,861	8,314	11,484	16,047	0
10 Univ of Wis-Madison	27,197	25,587	25,357	25,873	3,017	8,326	11,459	4,395
Total, 1st 10 insts.	514,008	508,942	461,212	418,771	56,742	96,470	286,492	74,304
11 Harvard University	25,713	20,204	18,933	18,094	4,392	11,856	9,169	296
12 Univ of Cal San Diego	24,540	25,144	23,740	22,932	9,853	6,487	7,904	296
13 University of Chicago	24,329	22,059	21,747	21,859	2,506	9,333	11,868	622
14 Univ of Ill Urbana	23,307	22,034	21,775	22,003	1,444	9,208	12,655	0
15 Indiana University	22,059	21,388	18,579	18,077	552	7,927	13,580	0
16 Univ of Cal Los Angeles	21,764	20,776	20,937	17,372	1,083	9,855	10,826	0
17 Michigan State University	21,121	19,489	16,648	16,967	3	3,602	17,516	0
18 Univ. of Colorado	21,121	18,240	17,109	16,683	7,414	6,587	6,967	153
19 Georgia Institute of Tech	20,753	15,205	7,955	7,979	0	5,380	13,781	1,592
20 Princeton University	20,191	19,273	17,889	14,903	2,238	8,873	9,080	0
Total, 1st 20 insts.	738,906	712,754	646,524	595,640	86,227	175,578	399,838	77,263
21 Texas A & M University	19,721	15,226	15,978	14,483E	0	9,808	7,098	2,815
22 SUNY at Stony Brook	18,224	18,526	12,936	11,929	503	4,754	12,681	286
23 Univ of Hawaii-Manoa	17,090	14,829	12,591	12,304	13,101	2,316	1,673	0
24 Rutgers the St Univ of NJ	16,480	12,519	10,027	8,620	0	7,905	8,575	0
25 U of Houston	16,033	9,771	8,224	6,698	4	4,908	10,973	148
26 University of Michigan	15,747	15,729	15,156	13,214	453	3,788	9,928	1,578
27 Yale University	15,059	15,585	13,315	22,029E	906	5,915	8,238	0
28 Univ of Pennsylvania	15,004	14,648	14,775	14,980	95	7,760	7,149	0
29 Univ of Cal Santa Barbara	14,866	14,397	13,701	13,002	0	3,714	8,779	2,373
30 Pennsylvania State Univ	14,687	13,143	11,352	10,630	2,389	8,616	2,679	1,003
Total, 1st 30 insts.	901,817	857,127	774,579	723,529	103,678	235,062	477,611	85,466
31 University of Minnesota	14,423	12,530	12,508	12,914	1,227	5,863	7,036	297
32 Columbia Univ Main Div	13,718	14,263	14,676	13,259	0E	7,120E	1,684	4,914
33 Purdue University	13,665	13,695	11,882	10,663	0	8,769	4,896	0
34 University of Washington	13,381	12,021	12,641	11,225	1,216	5,192	6,971	2
35 University of Iowa	13,114	11,449	10,402	9,608	983	3,277	8,851	3
36 Florida State University	13,089	9,324	9,141	9,517	0	5,382	7,707	0
37 Univ of Alaska Fairbanks	12,878	11,323E	6,352I	5,853I	5,237	581	6,258	802
38 Univ of Massachusetts	12,633	14,970	12,236	11,234	0	2,988	3,734	5,911
39 Arizona State University	12,340	10,408	8,090	8,932	246	5,260	2,995	3,839
40 Univ of Cal Santa Cruz	12,234	10,241	11,555	9,165	7,338	1,356	3,447	93
Total, 1st 40 insts.	1,033,292	977,351	884,062	825,899	119,925	280,850	531,190	101,327
41 Ohio State University	12,222	12,524	10,089	10,145	226	6,771	5,225	0
42 Northwestern University	11,884	10,174	9,087	7,889	0	7,661	4,208	15
43 University of Florida	11,653	10,751	10,726	9,597	1,872	5,061	4,720	0
44 Univ of Cal Irvine	11,425	10,846	10,188	9,986	0	3,910	7,379	136
45 University of Rochester	11,307	10,806	10,953	11,392	414	4,762	6,131	0
46 University of Notre Dame	11,041	11,418	8,518	7,679	0	6,660	4,381	0
47 University of Pittsburgh	10,952	9,998	10,524	9,864	604	5,736	3,891	721
48 Univ. Of Tennessee System	10,720	8,851	6,388	5,556	19	4,960	5,741	0
49 University of Virginia	10,528	9,068	8,664	6,916	524	5,096	4,908	0
50 Case Western Reserve Univ	10,164	9,789	8,715	4,528E	225	8,233	1,706	0
Total, 1st 50 insts.	1,145,188	1,081,576	977,914	909,451	123,809	339,700	579,480	102,199

See footnotes at end of table.

Table B-45. R&D expenditures in the physical sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Physical sciences total				1989 subfields			
	1989	1988	1987	1986	Astronomy	Chemistry	Physics	Other
51 University of Oregon	9,589	9,474	8,468	8,509	0	5,501	4,088	0
52 Rockefeller University	9,518	9,433	9,013	9,267	0	7,471	2,047	0
53 Univ Alabama Huntsville	9,193	8,381	4,306	1,934	0	2,972	6,218	3
54 Louisiana State Univ	8,781	7,756	7,103	6,653	0	4,698	3,769	314
55 University of Utah	8,633	7,879	7,512	7,935	0	5,653	2,980	0
56 VA Polytech Inst & St U	8,378	6,916	6,745	5,716	0	5,155	2,586	637
57 Duke University	7,864	5,942	5,979	5,786	0	2,458	5,406	0
58 Rice University	7,449	6,964	7,185I	6,544I	2,352	3,144	1,953	0
59 Univ of Cal Davis	7,346	6,741	5,685	5,285	0	3,693	3,653	0
60 Wayne State University	7,230	5,828	4,585	4,403	0	5,557	1,673	0
Total, 1st 60 insts.	1,229,169	1,156,890	1,044,495	971,483	126,161	386,002	613,853	103,153
61 Carnegie-Mellon Univ	7,169	7,122	5,959	5,217	0	3,854	3,201	114
62 Vanderbilt University	7,067	5,984	5,169	3,790	0	1,230	5,837	0
63 Univ of Ill Chicago	7,005	7,547	6,785	5,855	0	3,721	3,284	0
64 Univ of NC at Chapel Hill	6,508	5,782	4,738	4,495	0	5,171	1,337	0
65 Washington University	6,475	5,305	4,598	3,706	0	3,741	2,734	0
66 Boston University	6,453	5,373	4,501	3,229	898	1,665	3,573	317
67 SUNY at Buffalo	6,413	5,631	4,732	3,950	0	4,644	1,159	610
68 University of Delaware	6,397	3,844	3,390	2,942	0	2,795	1,098	2,504
69 Univ of South Carolina	6,376	6,273	6,196	6,247	0	4,466	1,378	532
70 University of Georgia	6,239	5,624	4,219	3,400	0	4,091	2,148	0
Total, 1st 70 insts.	1,295,271	1,215,375	1,094,782	1,014,314	127,059	421,380	639,602	107,230
71 Univ of Southern Cal	6,107	5,549	4,748	4,275	121	4,374	1,612	0
72 Rensselaer Polytech Inst	5,826	5,067	3,302	2,927I	0	4,198	1,628	0
73 Univ of Texas at Dallas	5,738	5,678	6,172	4,424	0	777	4,616	345
74 University of Kansas	5,710	4,420	3,433	2,399	0	4,952	664	94
75 Utah State University	5,662	6,050	2,971	3,106	0	2,379	3,283	0
76 University of Cincinnati	5,643	4,859	4,711	2,275	0	4,655	988	0
77 Lehigh University	5,585	6,043	5,892	5,419	0	3,959	1,626	0
78 CUNY City College	5,559	4,752	4,998	4,631I	0	2,055	3,504	0
79 N C State Univ at Raleigh	5,488	4,557	4,000	3,065	0	858	3,748	882
80 Brown University	5,440	5,988	5,726	5,353	0	2,546	2,894	0
Total, 1st 80 insts.	1,352,029	1,268,338	1,140,735	1,052,188	127,180	452,133	664,165	108,551
81 University of Oklahoma	5,276	5,615	5,319	3,717	0	3,968	1,308	0
82 Univ of Central Florida	5,234	165	114I	77I	4,878	140	216	0
83 Univ of New Hampshire	5,176	6,367	5,640	5,192	0	412	750	4,014
84 Syracuse University	5,039	4,860	4,647	7,096	0	2,313	2,599	127
85 Univ of Nebraska-Lincoln	4,861	4,006	4,122	4,433	78	2,882	1,901	0
86 Colorado State University	4,832	5,932	4,543	4,748	0	4,204	628	0
87 Oregon State University	4,670	4,038	2,889	2,236I	1	3,565	1,096	8
88 Montana State University	4,305	4,007	3,570I	3,134	0	2,176	2,129	0
89 Iowa St U of Sci & Tech	4,276	3,224	4,631	4,568	65	2,910	1,301	0
90 University of Akron	4,257	3,086	3,062	1,966	0	1,815	140	2,302
Total, 1st 90 insts.	1,399,955	1,309,638	1,179,272	1,089,355	132,202	476,518	676,233	115,002
91 Georgetown University	4,201	3,125	2,854	2,971	0	3,904	285	12
92 Univ of Cal Riverside	4,146	5,096	4,202	4,285	0	2,297	1,849	0
93 Howard University	4,139I	3,773I	3,424E	4,371I	0I	3,919I	220I	0I
94 Emory University	4,038	3,257	2,726	2,528	0	3,581	457	0
95 University of Connecticut	3,975	8,525	6,728	6,478	0	1,985	1,770	220
96 Catholic Univ of America	3,972	3,662	3,420	2,300	0	741	3,231	0
97 University of Dayton	3,944	6,320	6,744	6,372	0	488	3,456	0
98 Kans St U - Ag & App Sci	3,841	4,069	3,780	4,372	0	1,356	2,485	0
99 Oklahoma State University	3,811	7,861	4,109	2,730E	0	1,261	1,875	675
100 Univ of Ark Fayetteville	3,708	3,161	2,699	3,211	0	1,980	1,728	0
Total, 1st 100 insts.	1,439,730	1,358,487	1,219,958	1,128,973	132,202	498,030	693,589	115,909
Total, all other sampled insts.	183,110	188,729	170,984	156,999	2,758	99,403	75,225	5,724
Estimated total non-sampled insts.	20,537	0	0	0	2,154	12,961	4,186	1,237

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-46. Federally financed R&D expenditures in the physical sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Physical sciences total				1989 subfields			
	1989	1988	1987	1986	Astronomy	Chemistry	Physics	Other
Total, all institutions	1,195,155	1,153,653	1,047,533	982,150	88,011	423,711	597,664	85,769
1 Johns Hopkins Univ	84,556	95,449	77,894	66,553	3,145	4,824	67,707	8,880
2 Mass Inst of Technology	74,896	72,927	69,502	68,575	3,684	13,333	57,879	0
3 Stanford University	46,501	51,859	41,631	37,854	0	8,878	5,829	31,794
4 Univ of Cal Berkeley	37,355	36,851	32,782	30,265	2,941	11,540	22,874	0
5 California Inst of Tech	35,366	34,797	34,456	29,741	6,900	7,459	21,007	0
6 Cornell University	33,105	33,693	35,188	34,164	3,062	7,458	21,071	1,514
7 Univ of MD College Park	25,029	23,542	23,055	18,467	0	3,844	13,007	8,178
8 University of Arizona	23,882	24,717	20,659	19,842	7,384	3,044	7,582	5,872
9 Harvard University	22,932	19,334	18,058	17,249	4,392	10,594	7,664	282
10 University of Chicago	22,261	20,069	19,659	20,451	2,338	8,621	11,302	0
Total, 1st 10 insts.	405,883	413,238	372,884	343,161	33,846	79,595	235,922	56,520
11 Univ of Cal San Diego	21,204	21,923	19,937	19,883	8,059	5,757	7,135	253
12 Univ of Wis-Madison	20,691	19,774	18,372	20,019	2,324	5,505	9,934	2,928
13 Univ of Texas at Austin	20,081	20,050	19,030	17,297	3,966	6,120	9,995	0
14 Univ of Cal Los Angeles	19,521	17,988	19,296	16,363	927	9,024	9,570	0
15 Indiana University	18,212	18,192	15,255	14,949	407	6,127	11,678	0
16 Univ of Ill Urbana	18,085	16,893	16,859	17,270	786	6,566	10,733	0
17 Univ. of Colorado	17,416	15,270	13,997	13,378	5,889	5,418	5,969	140
18 Princeton University	15,037	14,636	14,563	12,578	1,765	5,681	7,591	0
19 Michigan State University	14,203	13,627	10,786	11,909	0	2,363	11,840	0
20 Univ of Pennsylvania	13,675	13,250	12,735	12,548	76	7,046	6,553	0
Total, 1st 20 insts.	584,008	584,841	533,714	499,355	58,045	139,202	326,920	59,841
21 Yale University	13,283	13,887	11,957	20,138E	762	5,011	7,510	0
22 Univ of Cal Santa Barbara	13,249	12,922	12,271	11,357	0	3,242	7,797	2,210
23 Columbia Univ Main Div	13,152	13,699	14,409	12,548	0	6,676	1,571	4,905
24 Univ of Hawaii-Manoa	12,878	11,329	9,576	9,657	9,353	1,990	1,535	0
25 SUNY at Stony Brook	12,660	12,740	10,129	7,758E	448	3,610	8,602	0
26 Georgia Institute of Tech	11,650	8,001	4,173	4,421	0	3,020	7,736	894
27 University of Michigan	11,186	12,214	12,055	11,316	363	3,022	7,597	204
28 University of Washington	11,169	9,911	9,663	9,437	808	3,756	6,605	0
29 University of Minnesota	11,064	9,265	9,991	9,987	1,001	5,054	5,009	0
30 University of Iowa	11,033	9,058	8,539	7,941	867	2,364	7,802	0
Total, 1st 30 insts.	705,332	697,867	636,477	603,915	71,647	176,947	388,684	68,054
31 Univ of Cal Irvine	10,613	10,482	9,888	9,689	0	3,685	6,912	16
32 Purdue University	10,536	10,776	9,610	9,750	0	7,102	3,434	0
33 University of Rochester	10,424	9,729	10,254	10,736	252	4,327	5,845	0
34 Pennsylvania State Univ	10,202	9,569	8,688	7,787	1,853	6,515	1,830	4
35 Rutgers the St Univ of NJ	10,164	6,157	5,473	4,863	0	6,572	3,592	0
36 University of Notre Dame	9,376	10,341	7,597	6,907	0	5,983	3,393	0
37 Northwestern University	9,029	7,902	7,273	6,579	0	5,577	3,452	0
38 Texas A & M University	8,863	8,482	7,003	6,530	0	4,408	3,947	508
39 University of Pittsburgh	8,547	8,678	8,003	8,342	470	4,558	2,955	564
40 Univ of Massachusetts	8,275	10,682	8,642	7,565	0	1,326	2,658	4,291
Total, 1st 40 insts.	801,361	790,665	718,908	682,663	74,222	227,000	426,702	73,437
41 Ohio State University	8,188	8,896	7,756	7,693	110	4,445	3,633	0
42 U of Houston	7,928	5,480	3,773	2,645	0	2,118	5,810	0
43 University of Virginia	7,722	6,847	6,320	5,449	411	4,165	3,146	0
44 Univ of Alaska Fairbanks	7,298	6,417E	3,568I	3,374I	2,873	198	3,781	446
45 Univ Alabama Huntsville	7,282	5,381	2,941	1,408	0	2,414	4,868	0
46 University of Oregon	7,244	7,444	6,525	6,925	0	4,435	2,809	0
47 Arizona State University	7,169	5,752	4,336	4,450	12	3,172	2,289	1,696
48 Case Western Reserve Univ	6,932	7,076	6,396	3,195	225	5,161	1,546	0
49 Univ of Cal Davis	6,603	5,522	4,763	3,784	0	3,386	3,217	0
50 Duke University	6,555	4,789	4,920	5,069	0	1,573	4,982	0
Total, 1st 50 insts.	874,282	854,269	770,206	726,655	77,853	258,067	462,783	75,579

See footnotes at end of table.

Table B-46. Federally financed R&D expenditures in the physical sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Physical sciences total				1989 subfields			
	1989	1988	1987	1986	Astronomy	Chemistry	Physics	Other
51 University of Florida	6,539	6,717	6,124	5,362	483	2,820	3,236	0
52 Univ. Of Tennessee System	6,292	4,938	3,934	3,471	2	2,985	3,305	0
53 Boston University	6,179	5,018	4,356	3,095	891	1,496	3,475	317
54 University of Utah	6,124	6,180	6,344	6,973	0	3,872	2,252	0
55 Vanderbilt University	6,022	4,446	3,845	2,766	0	920	5,102	0
56 Carnegie-Mellon Univ	6,015	6,104	4,878	4,463	0	2,917	3,033	65
57 Rice University	5,839	5,382	5,605I	5,118I	2,123	2,133	1,583	0
58 Univ of Cal Santa Cruz	5,694	5,066	4,949	4,700	1,496	1,102	3,056	40
59 Washington University	5,625	4,229	3,746	3,291	0	3,088	2,537	0
60 Univ of Southern Cal	5,587	5,218	4,297	3,945	91	3,986	1,510	0
Total, 1st 60 insts.	934,198	907,567	818,284	769,839	82,939	283,386	491,872	76,001
61 Univ of NC at Chapel Hill	5,479	5,071	3,880	3,627	0	4,534	945	0
62 CUNY City College	5,001	4,171	4,729	4,296I	0	1,959	3,042	0
63 Univ of Ill Chicago	4,880	5,144	4,853	4,324	0	2,612	2,268	0
64 Brown University	4,817	5,579	5,256	4,816	0	2,228	2,589	0
65 Louisiana State Univ	4,744	4,308	4,437	3,935	0	2,264	2,477	3
66 Florida State University	4,718	4,018	4,150	4,723	0	1,997	2,721	0
67 Univ of New Hampshire	4,497	5,732	5,131	4,556	0	347	750	3,400
68 Rockefeller University	4,477	3,840	4,023	4,170	0	3,713	764	0
69 Univ of Texas at Dallas	4,343	3,691	4,606	3,356	0	439	3,784	120
70 VA Polytech Inst & St U	4,064	3,962	4,223	3,562	0	2,194	1,674	196
Total, 1st 70 insts.	981,218	953,083	863,572	811,204	82,939	305,673	512,886	79,720
71 Rensselaer Polytech Inst	3,993	2,542	1,863	1,792I	0	2,915	1,078	0
72 Colorado State University	3,983	5,182	4,043	4,244	0	3,457	526	0
73 Univ of Cal Riverside	3,866	4,638	3,850	3,935	0	2,040	1,826	0
74 University of Delaware	3,758	2,369	1,970	1,930	0	1,747	695	1,316
75 SUNY at Buffalo	3,681	3,420	3,349	2,815	0	2,782	600	299
76 Univ of South Carolina	3,674	3,803	3,904	4,160	0	2,905	694	75
77 Utah State University	3,652	4,676	2,215	2,203	0	838	2,814	0
78 Catholic Univ of America	3,640	3,444	3,366	2,229	0	732	2,908	0
79 Wayne State University	3,583	2,680	2,337	2,235	0	2,989	594	0
80 Univ of Nebraska-Lincoln	3,506	3,227	3,005	3,233	46	2,392	1,068	0
Total, 1st 80 insts.	1,018,554	989,064	893,474	839,980	82,985	328,470	525,689	81,410
81 Georgetown University	3,322	2,286	2,254	2,312	0	3,113	199	10
82 Syracuse University	3,312	3,258	3,280	4,112	0	1,602	1,591	119
83 University of Cincinnati	3,301	2,628	2,910	1,664	0	2,755	546	0
84 Kans St U - Ag & App Sci	3,297	3,220	3,068	3,805	0	1,026	2,271	0
85 University of Dayton	3,287	5,240	5,683	5,480	0	407	2,880	0
86 Emory University	3,135	2,829	2,473	2,451	0	2,719	416	0
87 Howard University	2,803I	2,574I	2,329	2,738E	0I	2,668I	135I	0I
88 Lehigh University	2,802	2,861	2,822	2,430	0	1,817	985	0
89 New York University	2,784	2,778	2,683	3,102	0	1,288	1,496	0
90 Brandeis University	2,733	2,871	2,603I	2,335I	0	1,552	1,181	0
Total, 1st 90 insts.	1,049,330	1,019,609	923,579	870,409	82,985	347,417	537,389	81,539
91 Montana State University	2,670	2,197	2,054I	1,911	0	1,390	1,280	0
92 University of Georgia	2,654	2,240	1,645	1,341	0	1,866	788	0
93 N C State Univ at Raleigh	2,616	2,220	2,614	2,146	0	423	1,996	197
94 Oregon State University	2,608	2,058	2,075	1,695I	0	1,794	814	0
95 Northeastern University	2,606	2,193	2,270	2,466	0	644	1,962	0
96 University of New Mexico	2,472	2,098	2,036	1,542	0	1,103	1,369	0
97 University of Kansas	2,457	1,548	1,524	1,305	0	2,030	427	0
98 Oregon Graduate Institute	2,410	3,286	2,404	2,102I	0	1,700	710	0
99 Oklahoma State University	2,315	2,142	2,128	1,224E	0	544	1,183	588
100 Univ of Sthrn Mississippi	2,300	1,307	1,252	649	0	2,285	15	0
Total, 1st 100 insts.	1,074,438	1,040,898	943,581	886,790	82,985	361,196	547,933	82,324
Total, all other sampled insts.	108,664	112,755	103,952	95,360	2,887	55,652	47,068	3,057
Estimated total non-sampled insts.	12,053	0	0	0	2,139	6,863	2,663	388

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-47. Total and federally financed R&D expenditures in chemistry at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	610,394	567,822	513,102	469,275	423,711	405,017	367,753	338,027
1 Mass Inst of Technology	15,031	13,287	11,471	13,593	13,333	11,987	10,656	12,909
2 Univ of Cal Berkeley	12,663	14,285	12,490	9,114	11,540	12,998	11,160	8,258
3 Harvard University	11,856	9,886	8,895	7,202	10,594	9,272	8,309	6,748
4 Univ of Texas at Austin	11,484	10,943	11,420	8,531	6,120	6,443	6,405	4,922
5 Cornell University	10,217	10,472	8,397	7,376	7,458	8,269	6,753	5,934
6 Stanford University	10,098	10,547	8,916	8,340	8,878	9,423	7,918	7,524
7 Univ of Cal Los Angeles	9,855	9,519	10,099	7,954	9,024	8,885	9,414	7,516
8 Texas A & M University	9,808	8,785	7,462	7,230E	4,408	4,945	4,019	3,128
9 Univ of MD College Park	9,732	8,545	9,258	7,904	3,844	3,793	4,073	3,557
10 University of Chicago	9,333	8,046	7,514	7,553E	8,621	7,235	6,499	6,769E
Total, 1st 10 insts.	110,077	104,315	95,922	84,797	83,820	83,250	75,206	67,265
11 California Inst of Tech	9,235	9,931	10,870	9,176	7,459	8,769	9,922	7,612
12 Univ of Ill Urbana	9,208	8,647	9,035	8,604	6,566	6,193	6,306	5,999
13 Princeton University	8,873	8,087	6,477	5,702	5,681	5,812	5,064	4,575
14 Purdue University	8,769	8,615	7,092	6,315	7,102	7,120	5,978	5,708
15 Pennsylvania State Univ	8,616	7,739	6,072	6,438	6,515	5,957	4,915	5,161
16 Univ of Wis-Madison	8,326	7,282	6,984	7,892	5,505	4,939	4,718	5,348
17 Case Western Reserve Univ	8,233	7,996	7,164	2,922E	5,161	5,433	5,016	2,062
18 Indiana University	7,927	7,991	6,181	6,110	6,127	6,354	4,923	4,757
19 Rutgers the St Univ of NJ	7,905	5,926	3,913	3,507	6,572	3,442	2,525	2,123
20 Univ of Pennsylvania	7,760	7,292	6,741	6,064	7,046	6,337	5,653	5,232
Total, 1st 20 insts.	194,929	183,821	166,451	147,527	147,554	143,606	130,226	115,842
21 Northwestern University	7,661	6,644	6,095	4,826	5,577	4,955	4,641	3,753
22 Rockefeller University	7,471	6,975	6,823	7,335	3,713	3,082	3,247	3,377
23 Columbia Univ Main Div	7,120E	6,931	6,715	5,555	6,676	6,519	6,625	5,030
24 Ohio State University	6,771	7,568	5,755	6,546	4,445	5,437	4,517	4,931
25 University of Notre Dame	6,660	7,004	5,550	5,402	5,983	6,557	5,158	4,998
26 Univ. of Colorado	6,587	5,637	5,118	5,830	5,418	4,603	4,402	4,911
27 Univ of Cal San Diego	6,487	6,780	5,179	6,535	5,757	6,161	4,599	5,918
28 Yale University	5,915	6,869	5,538	6,169E	5,011	5,927	4,909	5,566E
29 University of Minnesota	5,863	5,232	5,426	5,110	5,054	4,156	4,395	4,013
30 University of Pittsburgh	5,736	5,598	5,105	4,974	4,558	4,803	4,028	4,045
Total, 1st 30 insts.	261,200	249,059	223,755	205,809	199,746	195,806	176,747	162,384
31 University of Utah	5,653	4,600	4,846	5,354	3,872	3,614	4,194	4,791
32 Wayne State University	5,557	4,582	3,278	3,405	2,989	2,151	1,770	1,690
33 University of Oregon	5,501	5,550	4,462	5,087	4,435	4,519	3,579	4,345
34 Florida State University	5,382	4,308	3,841	4,047	1,997	1,402	1,344	1,437
35 Georgia Institute of Tech	5,380	5,989	4,889	5,260	3,020	3,574	2,565	2,914
36 Arizona State University	5,260	4,306	3,586	4,124	3,172	2,813	2,317	2,218
37 University of Washington	5,192	4,338	3,655	2,971	3,756	2,904	2,287	1,898
38 Univ of NC at Chapel Hill	5,171	4,476	3,471	3,352	4,534	4,193	3,153	2,929
39 VA Polytech Inst & St U	5,155	4,735	4,190	3,786	2,194	2,417	2,290	2,063
40 Johns Hopkins Univ	5,152	5,211	5,593	5,506	4,824	4,830	5,116	4,903
Total, 1st 40 insts.	314,603	297,154	265,566	248,701	234,539	228,223	205,362	191,572
41 University of Virginia	5,096	4,153	4,169	3,436	4,165	3,419	3,281	2,748
42 University of Florida	5,061	5,030	5,690	4,750	2,820	3,168	3,486	2,729
43 Univ. Of Tennessee System	4,960	3,962	2,611	2,501	2,985	2,093	1,737	1,520
44 University of Kansas	4,952	3,845	2,803	1,818	2,030	1,239	1,142	818
45 U of Houston	4,908	3,693	4,003	3,225	2,118	1,983	1,756	1,630
46 University of Rochester	4,762	4,437	3,545	3,584	4,327	3,936	3,275	3,336
47 SUNY at Stony Brook	4,754	5,010	3,669	3,333	3,610	3,460	2,930	2,168E
48 Louisiana State Univ	4,698	3,834	3,446	3,195	2,264	1,769	1,951	1,802
49 University of Cincinnati	4,655	4,008	3,816	1,684	2,755	2,088	2,403	1,235
50 SUNY at Buffalo	4,644	3,903	3,370	2,837	2,782	2,329	2,320	2,020
Total, 1st 50 insts.	363,093	339,029	302,688	279,064	264,395	253,707	229,643	211,578

See footnotes at end of table.

Table B-47. Total and federally financed R&D expenditures in chemistry at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 University of Arizona	4,532	3,934	3,441	3,016	3,044	2,885	2,499	2,291
52 Univ of South Carolina	4,466	4,078	4,622	4,432	2,905	2,839	3,113	3,285
53 Univ of Southern Cal	4,374	3,832	3,311	3,164	3,986	3,568	2,903	2,857
54 Colorado State University	4,204	4,950	3,713	3,867	3,457	4,280	3,273	3,403
55 Rensselaer Polytech Inst	4,198	3,737	2,511	2,279I	2,915	1,875	1,417	1,395I
56 University of Georgia	4,091	3,531	2,239	2,159	1,866	1,403	1,081	930
57 University of Oklahoma	3,968	3,765	3,633	2,301	1,775	1,740	1,573	1,465
58 Lehigh University	3,959	4,510	4,410	4,237	1,817	1,921	1,868	1,730
59 Howard University	3,919I	3,572I	3,240E	4,155I	2,668I	2,450I	2,216	2,595E
60 Univ of Cal Irvine	3,910	4,534	3,541	3,486	3,685	4,376	3,386	3,394
Total, 1st 60 insts.	404,714	379,472	337,349	312,160	292,513	281,044	252,972	234,923
61 Georgetown University	3,904	2,878	2,735	2,879	3,113	2,148	2,155	2,252
62 Carnegie-Mellon Univ	3,854	3,932	3,059	2,174	2,917	3,001	2,055	1,494
63 University of Michigan	3,788	3,879	3,276	2,854	3,022	3,310	2,615	2,367
64 Washington University	3,741	2,940	2,314	1,780	3,088	2,291	1,759	1,477
65 Univ of Ill Chicago	3,721	3,020	2,663	2,111	2,612	1,915	1,735	1,552
66 Univ of Cal Santa Barbara	3,714	3,539	3,874	3,506	3,242	3,196	3,526	3,087
67 Univ of Cal Davis	3,693	2,550	2,327	2,331	3,386	2,255	1,980	2,175
68 Michigan State University	3,602	2,690	2,511	2,323	2,363	1,833	1,583	1,574
69 Emory University	3,581	2,770	2,333	2,199	2,719	2,362	2,093	2,163
70 Oregon State University	3,565	3,461	2,378	1,904I	1,794	1,539	1,620	1,427I
Total, 1st 70 insts.	441,877	411,131	364,819	336,221	320,769	304,894	274,093	254,491
71 University of Iowa	3,277	2,482	2,613	2,622	2,364	1,718	1,846	1,545
72 Rice University	3,144	2,675	2,618I	2,382I	2,133	1,636	1,628I	1,487I
73 Univ of Massachusetts	2,988	5,280	7,589	6,967	1,326	3,296	5,036	4,411
74 Univ Alabama Huntsville	2,972	1,493	1,396	538	2,414	1,059	781E	463
75 Iowa St U of Sci & Tech	2,910	2,094	3,684	3,709	1,004	956	1,595	1,348
76 Univ of Nebraska-Lincoln	2,882	2,393	2,432	2,640	2,392	1,939	1,734	2,001
77 Univ of Sthrn Mississippi	2,807	1,691	1,847	1,252	2,285	1,198	1,250	617
78 University of Delaware	2,795	2,781	2,766	2,355	1,747	1,921	1,672	1,563
79 Polytechnic University	2,739	2,462	1,331	1,451	600	1,705	1,086	1,077E
80 Brown University	2,546	2,505	2,468	2,166	2,228	2,416	2,363	2,023
Total, 1st 80 insts.	470,937	436,987	393,563	362,303	339,262	322,738	293,084	271,026
81 Duke University	2,458	2,631	2,830	3,001	1,573	1,828	2,151	2,482
82 Utah State University	2,379	1,926	1,220	1,234	838	979	739	775
83 Brigham Young University	2,320I	2,062	1,729	2,161I	611I	722	577	972I
84 Univ of Hawaii-Manoa	2,316	1,606	1,425	933	1,990	1,431	1,367	892
85 Syracuse University	2,313	2,159	2,281	4,240	1,602	1,602	1,746	2,283
86 Univ of Cal Riverside	2,297	3,233	2,126	2,377	2,040	2,844	1,881	2,108
87 Brandeis University	2,197	2,201	1,958I	1,731I	1,552	1,850	1,419I	1,273I
88 Montana State University	2,176	2,221	1,954I	1,686	1,390	1,572	1,317I	1,062
89 Texas Tech University	2,100	1,693	2,189	1,790	618	581	1,181	682
90 CUNY City College	2,055	1,624	1,142	979I	1,959	1,535	1,092	915I
Total, 1st 90 insts.	493,548	458,343	412,417	382,435	353,435	337,682	306,554	284,470
91 The University of Alabama	2,039	1,675	1,701	1,268	1,431	1,147	1,339	1,013
92 CUNY Hunter College	2,018	1,534	2,219	1,728	1,507	1,208	1,590	1,237
93 Oregon Graduate Institute	1,995	1,766	1,340	1,190I	1,700	1,540	1,176	964I
94 University of Connecticut	1,985	4,279	3,396	3,380	695	1,098	872	917
95 Univ of Ark Fayetteville	1,980	2,373	1,953	2,324	835	1,007	925	1,200
96 Univ of Missouri Sys Off	1,896	1,649	1,713	1,750	13	82	48	47
97 University of Akron	1,815	949	1,184	635	201	273	291	208
98 Boston College	1,688	1,577	866	905I	1,617	1,526	827	857I
99 Boston University	1,665	1,734	1,706	1,233	1,496	1,526	1,645	1,124
100 University of New Mexico	1,574	1,440	1,539	851	1,103	791	1,089	526
Total, 1st 100 insts.	512,203	477,319	430,034	397,699	364,033	347,880	316,356	292,563
Total, all other sampled insts.	85,230	90,503	83,068	71,576	52,815	57,137	51,397	45,464
Estimated total non-sampled insts.	12,961	0	0	0	6,863	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-48. Total and federally financed R&D expenditures in physics at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	773,000	732,486	666,568	630,244	597,664	575,724	531,371	510,291
1 Johns Hopkins Univ	68,645	78,741	61,936	51,003E	67,707	77,885	60,947	50,434
2 Mass Inst of Technology	66,183	63,475	59,225	56,323	57,879	57,771	55,589	52,675
3 Univ of Cal Berkeley	26,457	24,249	21,463	21,409	22,874	21,167	18,860	18,957
4 Cornell University	25,895	25,283	29,046	28,513	21,071	20,340	24,525	24,959
5 Univ of MD College Park	25,257	22,126	22,351	21,776	13,007	12,089	12,571	11,997
6 California Inst of Tech	22,541	20,115	22,568	21,562	21,007	18,861	20,506	18,216
7 University of Arizona	17,873	18,547	17,399	13,731	7,582	9,264	8,209	7,959
8 Michigan State University	17,516	16,799	14,133	14,632	11,840	11,794	9,203	10,335
9 Univ of Texas at Austin	16,047	15,190	14,444	14,067	9,995	9,898	9,091	9,362
10 Georgia Institute of Tech	13,781	7,676	3,066	2,719	7,736	3,508	1,608	1,507
Total, 1st 10 insts.	300,195	292,201	265,631	245,735	240,698	242,577	221,109	206,401
11 Indiana University	13,580	12,985	12,078	11,762	11,678	11,514	10,063	10,022
12 SUNY at Stony Brook	12,681	12,571	8,602	7,646	8,602	8,681	6,733	4,972E
13 Univ of Ill Urbana	12,655	11,983	11,930	12,471	10,733	10,022	9,930	10,589
14 University of Chicago	11,868	8,079	7,525	7,564E	11,302	7,886	7,222	7,471E
15 Univ of Wis-Madison	11,459	11,408	11,141	10,634	9,934	9,777	9,414	9,118
16 U of Houston	10,973	6,064	4,097	3,468	5,810	3,494	2,017	1,015
17 Univ of Cal Los Angeles	10,826	10,164	9,719	8,675	9,570	8,162	8,888	8,162
18 University of Michigan	9,928	9,846	9,088	8,177	7,597	8,218	8,002	7,622
19 Harvard University	9,169	7,356	7,316	8,322	7,664	7,107	7,089	7,965
20 Princeton University	9,080	8,733	9,022	7,113	7,591	7,104	7,753	6,386
Total, 1st 20 insts.	412,414	391,390	356,149	331,567	331,179	324,542	298,220	279,723
21 University of Iowa	8,851	8,054	6,801	6,287	7,802	6,606	6,024	5,756
22 Univ of Cal Santa Barbara	8,779	7,548	6,970	6,668	7,797	6,575	6,045	5,606
23 Rutgers the St Univ of NJ	8,575	6,593	6,114	5,113	3,592	2,715	2,948	2,740
24 Yale University	8,238	8,079	6,987	15,043E	7,510	7,521	6,456	13,906E
25 Univ of Cal San Diego	7,904	6,630	6,276	5,423	7,135	5,982	5,825	5,045
26 Florida State University	7,707	5,016	5,300	5,470	2,721	2,616	2,806	3,286
27 Univ of Cal Irvine	7,379	6,228	6,552	6,482	6,912	6,090	6,450	6,295
28 Univ of Pennsylvania	7,149	7,081	7,923	8,904	6,553	6,643	6,971	7,305
29 Texas A & M University	7,098	5,208	7,268	7,012E	3,947	3,344	2,921	3,402
30 University of Minnesota	7,036	5,897	6,354	7,154	5,009	4,222	4,982	5,430
Total, 1st 30 insts.	491,130	457,724	422,694	405,123	390,157	376,856	349,648	338,494
31 University of Washington	6,971	6,427	7,055	7,185	6,605	6,312	6,771	6,999
32 Univ. of Colorado	6,967	6,082	5,657	4,224	5,969	5,244	4,723	3,331
33 Univ of Alaska Fairbanks	6,258	5,502E	3,102I	2,850I	3,781	3,325E	1,855I	1,749I
34 Univ Alabama Huntsville	6,218	6,231	2,781	1,157	4,868	3,770	2,117	860
35 Stanford University	6,135	7,221	5,537	5,652	5,829	6,802	5,244	5,340
36 University of Rochester	6,131	5,997	6,968	7,489	5,845	5,562	6,734	7,184
37 Vanderbilt University	5,837	4,395	4,055	1,525	5,102	3,283	3,030	1,423
38 Univ. Of Tennessee System	5,741	4,889	3,777	3,055	3,305	2,845	2,197	1,951
39 Duke University	5,406	3,311	3,149	2,785	4,982	2,961	2,769	2,587
40 Ohio State University	5,225	4,874	4,239	3,376	3,633	3,385	3,161	2,573
Total, 1st 40 insts.	552,019	512,653	469,014	444,421	440,076	420,345	388,249	372,491
41 University of Virginia	4,908	4,518	4,019	2,900	3,146	3,115	2,699	2,245
42 Purdue University	4,896	5,080	4,790	4,348	3,434	3,656	3,632	4,042
43 University of Florida	4,720	4,121	3,123	2,801	3,236	2,572	1,753	1,600
44 Univ of Texas at Dallas	4,616	4,585	5,098	3,863	3,784	2,980	3,805	2,931
45 University of Notre Dame	4,381	4,414	2,968	2,277	3,393	3,784	2,439	1,909
46 Northwestern University	4,208	3,522	2,992	3,063	3,452	2,947	2,632	2,826
47 University of Oregon	4,088	3,924	4,006	3,422	2,809	2,925	2,946	2,580
48 University of Pittsburgh	3,891	3,506	4,312	3,785	2,955	3,133	3,074	3,330
49 Louisiana State Univ	3,769	3,488	3,403	3,139	2,477	2,527	2,482	2,131
50 N C State Univ at Raleigh	3,748	3,198	2,638	2,227	1,996	1,850	2,105	1,801
Total, 1st 50 insts.	595,244	553,009	506,363	476,246	470,758	449,834	415,816	397,886

See footnotes at end of table.

Table B-48. Total and federally financed R&D expenditures in physics at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 Univ of Massachusetts	3,734	3,779	3,300	3,217	2,658	2,972	2,458	2,486
52 Univ of Cal Davis	3,653	4,191	3,358	2,954	3,217	3,267	2,783	1,609
53 Boston University	3,573	2,822	2,114	1,366	3,475	2,675	2,030	1,341
54 CUNY City College	3,504	3,128	3,856	3,570I	3,042	2,636	3,637	3,381I
55 University of Dayton	3,456	5,703	5,333	4,936	2,880	4,728	4,494	4,245
56 Univ of Cal Santa Cruz	3,447	3,001	2,924	2,547	3,056	2,661	2,659	2,180
57 Univ of Ill Chicago	3,284	4,527	4,122	3,744	2,268	3,229	3,118	2,772
58 Utah State University	3,283	4,124	1,751	1,872	2,814	3,697	1,476	1,428
59 Catholic Univ of America	3,231	3,263	3,025	1,996	2,908	3,055	2,986	1,925
60 Carnegie-Mellon Univ	3,201	3,058	2,759	2,909	3,033	2,976	2,684	2,836
Total, 1st 60 insts.	629,610	590,605	538,905	505,357	500,109	481,730	444,141	422,089
61 UT MD Anderson Cancer Ctr	3,053	2,885	2,375	2,434	2,025	2,063	1,561	1,563
62 Arizona State University	2,995	2,848	1,906	2,291	2,289	1,718	841	1,198
63 University of Utah	2,980	3,279	2,666	2,581	2,252	2,566	2,150	2,182
64 Brown University	2,894	3,483	3,258	3,187	2,589	3,163	2,893	2,793
65 Washington University	2,734	2,365	2,284	1,926	2,537	1,938	1,987	1,814
66 Pennsylvania State Univ	2,679	1,878	1,959	1,903	1,830	1,517	1,701	1,586
67 Syracuse University	2,599	2,491	2,075	2,856	1,591	1,452	1,294	1,829
68 VA Polytech Inst & St U	2,586	2,181	2,555	1,930	1,674	1,545	1,933	1,499
69 Kans St U - Ag & App Sci	2,485	2,647	1,750	3,333	2,271	2,147	1,428	3,099
70 Alabama A & M University	2,390	939	1,991	1,199I	1,939	815	1,991	1,199I
Total, 1st 70 insts.	657,005	615,601	561,724	528,997	521,106	500,654	461,920	440,851
71 US Naval Postgrad School	2,261	2,168	1,266	1,701	2,204	2,168	1,266	1,701
72 Northeastern University	2,250	1,965	1,876	1,960	1,962	1,748	1,735	1,762
73 University of Georgia	2,148	2,093	1,980	1,241	788	837	564	411
74 Montana State University	2,129	1,786	1,616I	1,448	1,280	625	737I	849
75 Temple University	2,050	1,802	1,183	1,003	733	523	949	688
76 Rockefeller University	2,047	2,458	2,190	1,932	764	758	776	793
77 Rice University	1,953	2,013	1,901I	1,732I	1,583	1,689	1,692I	1,545I
78 University of New Mexico	1,932	1,734	1,423	1,477	1,369	1,307	947	1,016
79 Univ of Nebraska-Lincoln	1,901	1,545	1,545	1,595	1,068	1,232	1,128	1,087
80 Oklahoma State University	1,875	2,623	2,226	1,359E	1,183	1,012	1,095	572E
Total, 1st 80 insts.	677,551	635,788	578,930	544,445	534,040	512,553	472,809	451,275
81 Univ of Cal Riverside	1,849	1,863	2,076	1,908	1,826	1,794	1,969	1,827
82 Univ of Missouri Rolla	1,816	2,329	2,309	2,122	504	616	809	618
83 University of Connecticut	1,770	4,080	3,238	3,047	528	898	713	826
84 Univ of Ark Fayetteville	1,728	788	746	887	319	288	330	375
85 Michigan Tech University	1,721	2,219	1,577	1,822	1,177	1,680	1,121	1,017
86 Case Western Reserve Univ	1,706	1,557	1,340	1,302E	1,546	1,421	1,182	919
87 Columbia Univ Main Div	1,684	1,310	2,395	2,468	1,571	1,167	2,244	2,341
88 Univ of North Texas	1,675	1,351	753	1,017	930	434	471	657
89 New York University	1,674	1,914	2,004	2,393	1,496	1,716	1,864	2,145
90 Univ of Hawaii-Manoa	1,673	1,498	1,322	1,430	1,535	1,465	1,272	1,422
Total, 1st 90 insts.	694,847	654,697	596,690	562,841	545,472	524,032	484,784	463,422
91 Wayne State University	1,673	1,246	1,307	998	594	529	567	545
92 College of William & Mary	1,642	1,696	1,542	1,464	1,500	1,553	1,416	1,383
93 Rensselaer Polytech Inst	1,628	1,330	773	648I	1,078	667	436	397I
94 Lehigh University	1,626	1,533	1,482	1,182	985	940	954	700
95 Univ of Southern Cal	1,612	1,646	1,393	1,097	1,510	1,597	1,350E	1,075
96 University of Denver	1,575	1,644	1,903	2,379	1,400	743	1,643	1,986
97 Brandeis University	1,468	1,163	1,546I	1,368I	1,181	1,021	1,184I	1,062I
98 Drexel University	1,424	1,282	1,628	1,200	935	761	902	850
99 Hampton University	1,398	NA	NA	NA	1,398	NA	NA	NA
100 Washington State Univ	1,393	1,377	1,192	1,088	1,220	1,339	1,081	1,010
Total, 1st 100 insts.	710,286	667,614	609,456	574,265	557,273	533,182	494,317	472,430
Total, all other sampled insts.	58,528	64,872	57,112	55,979	37,728	42,542	37,054	37,861
Estimated total non-sampled insts.	4,186	0	0	0	2,663	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-49. R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Environmental sciences total				1989 subfields			
	1989	1988	1987	1986	Atmos-pheric	Earth sciences	Ocean-ography	Other
Total, all institutions	982,936	884,522	830,819	772,605	159,084	322,533	357,663	143,656
1 Univ of Cal San Diego	75,600	70,164	64,768	63,525	1	14,973	60,626	0
2 Woods Hole Ocngrphic Inst	65,436	47,100	38,345	34,334	4,692I	21,866I	16,957I	21,921I
3 Texas A & M University	52,220	56,249	50,005	41,913E	933	5,603	42,860	2,824
4 Johns Hopkins Univ	43,970	32,973	27,963	27,841	11,809	1,870	20,347	9,944
5 Columbia Univ Main Div	29,982	29,662	27,359	26,941	0	16	29,966	0
6 Univ of Hawaii-Manoa	23,005	19,907	15,734	17,732	304	20,352	1,190	1,159
7 University of Arizona	22,612	17,572	17,220	14,835	1,734	5,286	0	15,592
8 Univ. of Colorado	22,511	22,730	20,467	16,975	12,811	7,081	966	1,653
9 Univ of Alaska Fairbanks	21,766	19,138E	21,666I	20,565I	393	5,978	15,332	63
10 Univ of Texas at Austin	20,919	23,440	21,893	16,581	0	12,006	8,913	0
Total, 1st 10 insts.	378,021	338,935	305,420	281,242	32,677	95,031	197,157	53,156
11 Univ of Wis-Madison	20,869	20,640	19,637	19,272	12,978	1,997	2,476	3,418
12 Univ of Ill Urbana	20,702	18,205	21,340	20,023	839	17,091	0	2,772
13 Oregon State University	20,097	19,629	18,816	18,090I	758	2,359	16,980	0
14 University of Washington	19,198	20,316	18,717	19,574	5,234	3,732	10,052	180
15 University of Michigan	16,142	14,600	14,023	10,434	9,695	2,691	76	3,680
16 University of Miami	16,132	14,065	12,983	15,870	8,288	174	5,306	2,364
17 Univ of Rhode Island	14,917I	15,048	15,441	16,681I	0I	156I	14,761I	0I
18 California Inst of Tech	14,391	12,482	12,661	12,044	0	13,688	0	703
19 Louisiana State Univ	14,329	14,340	13,091	12,173	0	4,494	7,159	2,676
20 U of MD Center For EES	13,741	12,682	12,029	9,742	0	0	12,462	1,279
Total, 1st 20 insts.	548,539	500,942	464,158	435,145	70,469	141,413	266,429	70,228
21 Desert Research Institute	13,671	13,023	11,626	10,345	3,503	4,862	0	5,306
22 Pennsylvania State Univ	12,537	10,544	10,979	9,245	4,849	5,626	0	2,062
23 Mass Inst of Technology	11,614	11,716	10,582	11,861	232	9,640	1,742	0
24 Univ of Cal Los Angeles	11,272	11,278	11,626	10,745	1,778	9,494	0	0
25 Utah State University	11,246	8,650	13,406	15,482	6,904	4,342	0	0
26 SUNY at Albany	11,089	8,008	7,671	5,880	10,458	631	0	0
27 SUNY at Stony Brook	10,021	9,018	5,997	5,970	149	2,386	7,233	253
28 Georgia Institute of Tech	9,918	7,405	8,595	7,757	1,972	2,615	0	5,331
29 Univ of Cal Santa Barbara	9,305	8,667	6,899	6,710	0	877	6,813	1,615
30 Univ of Central Florida	8,739	2,204	839I	0	8,526	213	0	0
Total, 1st 30 insts.	657,951	591,455	552,378	519,140	108,840	182,099	282,217	84,795
31 University of Oklahoma	8,632	8,581	9,305	7,970	3,232	5,400	0	0
32 Univ of South Carolina	7,972	6,307	5,961	8,858	0	4,908	3,064	0
33 Colorado State University	7,813	7,223	6,339	4,931	7,651	162	0	0
34 Univ of New Hampshire	7,391	6,847	6,089	4,214	0	946	969	5,476
35 University of Kansas	7,324	6,954	6,660	6,112	0	5,538	0	1,786
36 Univ of Southern Cal	7,305	6,462	7,618	7,848	0	2,661	3,106	1,538
37 University of Minnesota	7,198	5,803	5,750	4,217	0	6,900	0	298
38 Florida State University	6,912	6,844	6,267	5,316	3,323	831	2,190	568
39 Harvard University	6,692	6,073	6,224	5,542	0	6,692	0	0
40 University of Delaware	6,641	7,027	5,948	5,692	0	469	6,172	0
Total, 1st 40 insts.	731,831	659,576	618,539	579,840	123,046	216,606	297,718	94,461
41 University of Connecticut	6,569	4,574	4,379	3,146	0	471	6,098	0
42 Univ of MD College Park	6,557	5,862	5,376	5,587	4,662	862	1,033	0
43 Princeton University	6,388	6,210	6,223	5,661	2,969	3,419	0	0
44 University of Georgia	6,111	5,417	6,118	4,616	0	3,033	3,078	0
45 Univ of Massachusetts	6,062	5,715	4,499	4,633	0	2,968	49	3,045
46 Cornell University	5,504	6,964	6,123	4,938	0	3,102	0	2,402
47 N C State Univ at Raleigh	5,473	4,740	4,495	6,132	0	0	2,527	2,946
48 Rutgers the St Univ of NJ	5,439	5,637	5,619	4,948	242	246	38	4,913
49 Stanford University	5,186	4,464	4,308	3,949	0	4,093	1,093	0
50 Univ of NC at Chapel Hill	4,700	4,343	4,047	4,262	0	2,343	2,357	0
Total, 1st 50 insts.	789,820	713,502	669,726	627,712	130,919	237,143	313,991	107,767

See footnotes at end of table.

Table B-49. R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Environmental sciences total				1989 subfields			
	1989	1988	1987	1986	Atmos-pheric	Earth sciences	Ocean-ography	Other
51 University of Virginia	4,588	4,175	3,437	2,970	3,314	0	1,265	9
52 Ohio State University	4,491	4,099	3,719	2,937	0	1,562	0	2,929
53 Arizona State University	4,399	4,477	3,265	2,340	1	4,205	0	193
54 College of William & Mary	4,145	4,770	4,174	3,147	0	0	4,145	0
55 Brown University	4,138	4,118	3,861	3,529	0	3,968	0	170
56 N Mex Inst Mining & Tech	4,114	3,206	2,926	2,929	1,615	2,499	0	0
57 Southern Methodist Univ	4,051	2,018	837	1,005I	0	4,051	0	0
58 University of Chicago	3,994	3,057	3,314	2,577	0	3,994	0	0
59 Univ of South Florida	3,955	2,755	3,326	3,901	0	326	3,629	0
60 University of Florida	3,944	3,582	3,578	3,279	42	1,318	2,525	59
Total, 1st 60 insts.	831,639	749,759	702,163	656,326	135,891	259,066	325,555	111,127
61 Tufts University	3,922	2,941	2,464	1,486I	0	15	0	3,907
62 Univ of Cal Santa Cruz	3,796	4,685	4,024	3,496	0	1,512	1,825	459
63 Univ of Nevada - Reno	3,738	4,170	2,585	1,675I	0	2,263	0	1,475
64 VA Polytech Inst & St U	3,497	2,488	3,111	4,009	0	3,497	0	0
65 University of Utah	3,477	3,290	2,675	2,046	1,234	2,243	0	0
66 Univ of Maine Orono	3,330	1,630	3,015	1,388	0	1,986	1,096	248
67 Duke University	3,316	3,732	3,563	2,941	0	812	2,504	0
68 US Naval Postgrad School	3,029	3,865	2,931	3,499	1,316	0	1,713	0
69 Univ of Cal Berkeley	3,024	2,374	2,377	2,655	0	3,024	0	0
70 San Jose State University	2,942	2,247	2,988I	2,748I	6	65	2,866	5
Total, 1st 70 insts.	865,710	781,181	731,896	682,269	138,447	274,483	335,559	117,221
71 University of N Dakota	2,923	2,679	3,396	3,010I	2,768	31	0	124
72 University of Wyoming	2,704	2,842	2,515	2,465	987	970	0	747
73 Memphis State University	2,679	2,313	2,281	1,358	0	2,679	0	0
74 University of Oregon	2,510	950	752	631	0	994	1,512	4
75 Univ of Wis-Milwaukee	2,457	2,266	2,456	2,177	0	157	2,238	62
76 Univ of Nebraska-Lincoln	2,314	4,170	3,762	3,386	495	1,819	0	0
77 The University of Alabama	2,291	940	1,397	1,103	5	951	71	1,264
78 Oregon Graduate Institute	2,289	2,209	1,802	1,666I	953	0	0	1,336
79 Fairleigh Dickinson Univ	2,274I	3,140	2,308	1,280	0I	0I	2,240I	34I
80 SUNY Col of Env Sci & For	2,234	1,103	683	856I	69	77	209	1,879
Total, 1st 80 insts.	890,385	803,793	753,248	700,231	143,724	282,161	341,829	122,671
81 Colorado School of Mines	2,229	1,539	2,017	1,929	0	2,161	0	68
82 Rice University	2,175	2,257	1,746I	1,591I	0	488	0	1,687
83 Yale University	2,153	2,241	1,892	1,693E	782	864	395	112
84 Purdue University	2,020	1,804	1,651	1,418	434I	799I	584I	203I
85 Washington University	1,966	1,783	1,540	1,626	0	1,966	0	0
86 New Mexico State Univ	1,788	1,939	929	1,049	1,411	300	0	77
87 Univ of Wis-Superior	1,745	1,552	1,654	1,410	0	0	0	1,745
88 Carnegie-Mellon Univ	1,676	1,701	1,761	1,660	0	0	0	1,676
89 S Dak Sch Mines & Tech	1,573	1,286	1,188	1,212	1,573	0	0	0
90 Drexel University	1,554	928	875	775	1,554	0	0	0
Total, 1st 90 insts.	909,264	820,823	768,501	714,594	149,478	288,739	342,808	128,239
91 University of New Mexico	1,521	1,568	1,352	1,340	419	872	0	230
92 Southern Ill U-Carbondale	1,508	2,368	2,740	2,706	1	1,279	0	228
93 Univ of Cal Riverside	1,462	1,384	1,511	1,330	0	1,462	0	0
94 Univ. Of Tennessee System	1,455	1,080	1,014	484	83	1,372	0	0
95 University of Idaho	1,436	1,230	887	1,117	0	1,073	0	363
96 Wentworth Inst of Tech	1,383	1,457	1,431I	1,405I	1,383	0	0	0
97 West Virginia University	1,378	940	952	736	0	279	0	1,099
98 Florida Inst of Tech	1,357	639	507	461	405	165	787	0
99 University of Lowell	1,331	459	247	47	0	33	0	1,298
100 Northwestern University	1,308	1,275	917	830	0	1,308	0	0
Total, 1st 100 insts.	923,403	833,223	780,059	725,050	151,769	296,582	343,595	131,457
Total, all other sampled insts.	43,218	51,299	50,760	47,555	2,917	23,602	5,612	11,087
Estimated total non-sampled insts.	16,315	0	0	0	4,398	2,349	8,456	1,112

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

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Table B-50. Federally financed R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Environmental sciences total				1989 subfields			
	1989	1988	1987	1986	Atmospheric	Earth sciences	Oceanography	Other
Total, all institutions	644,690	582,786	540,769	514,960	124,894	186,069	265,923	67,805
1 Univ of Cal San Diego	57,182	53,001	47,102	48,167	0	9,679	47,503	0
2 Woods Hole Ocngrphic Inst	57,043	40,800	33,976	29,686	3,883I	19,976I	14,489I	18,695I
3 Texas A & M University	42,308	41,651	40,290	39,487	377	1,168	39,234	1,529
4 Johns Hopkins Univ	40,712	29,278	25,726	25,915	11,675	1,422	19,916	7,699
5 Columbia Univ Main Div	28,204	27,073	26,358	24,417	0	0	28,204	0
6 Univ. of Colorado	18,997	19,362	17,545	14,975	11,006	5,750	871	1,370
7 University of Washington	17,954	19,195	16,593	17,337	4,916	3,621	9,279	138
8 Oregon State University	16,577	15,640	14,620	14,081I	596	1,164	14,817	0
9 Univ of Hawaii-Manoa	14,673	13,657	10,732	12,315	288	13,577	556	252
10 Univ of Wis-Madison	14,461	14,852	14,143	13,876	11,032	926	713	1,790
Total, 1st 10 insts.	308,111	274,509	247,085	240,256	43,773	57,283	175,582	31,473
11 University of Miami	13,691	11,194	9,469	11,200	7,179	174	4,325	2,013
12 California Inst of Tech	13,628	11,459	11,136	10,071	0	13,415	0	213
13 University of Michigan	11,965	11,870	11,124	8,121	8,895	1,365	10	1,695
14 Univ of Alaska Fairbanks	11,390	10,015E	11,243I	10,138I	393	3,173	7,801	23
15 Univ of Rhode Island	10,829I	11,334	11,724	13,574I	0I	100I	10,729I	0I
16 Mass Inst of Technology	9,032	9,583	8,400	9,997	181	7,496	1,355	0
17 Univ of Cal Los Angeles	7,753	7,779	7,465	7,931	1,661	6,092	0	0
18 Desert Research Institute	7,380	6,931	5,792	5,166	2,456	3,922	0	1,002
19 Colorado State University	7,134	6,589	5,942	4,585	6,980	154	0	0
20 University of Arizona	6,665	4,693	4,914	3,864	589	2,404	0	3,672
Total, 1st 20 insts.	407,578	365,956	334,294	324,903	72,107	95,578	199,802	40,091
21 Univ of Cal Santa Barbara	6,604	5,621	4,515	4,638	0	762	4,963	879
22 Harvard University	6,202	6,019	6,161	5,460	0	6,202	0	0
23 Univ of Ill Urbana	6,030	5,941	5,768	6,210	634	4,837	0	559
24 Pennsylvania State Univ	5,857	5,062	5,263	4,376	3,758	1,699	0	400
25 Utah State University	5,811	4,867	10,010	12,124	4,893	918	0	0
26 Georgia Institute of Tech	5,568	4,188	4,509	4,298	1,107	1,468	0	2,993
27 Univ of Southern Cal	5,326	4,747	5,955	6,472	0	1,816	2,592	918
28 SUNY at Albany	5,282	5,145	5,209	3,788	4,852	430	0	0
29 Univ of Texas at Austin	5,137	8,284	7,206	4,590	0	2,913	2,224	0
30 SUNY at Stony Brook	5,081	6,172	3,121	3,883E	0	1,209	3,872	0
Total, 1st 30 insts.	464,476	422,002	392,011	380,742	87,351	117,832	213,453	45,840
31 Univ of MD College Park	5,061	4,503	4,058	4,296	3,892	136	1,033	0
32 Louisiana State Univ	4,822	4,919	4,343	4,036	0	1,481	2,695	646
33 University of Connecticut	4,366	2,604	2,490	1,608	0	267	4,099	0
34 Univ of New Hampshire	4,231	4,315	4,318	2,894	0	543	764	2,924
35 Univ of Central Florida	4,225	873	341I	0	4,225	0	0	0
36 Arizona State University	4,017	3,399	1,083	1,595	0	4,011	0	6
37 University of Virginia	3,940	3,526	2,894	2,657	2,709	0	1,231	0
38 Southern Methodist Univ	3,913	1,935	810	951I	0	3,913	0	0
39 Florida State University	3,877	3,960	3,667	3,335	2,177	314	1,076	310
40 University of Chicago	3,765	2,817	3,104	2,473	0	3,765	0	0
Total, 1st 40 insts.	506,693	454,853	419,119	404,587	100,354	132,262	224,351	49,726
41 University of Delaware	3,666	3,505	2,857	2,899	0	262	3,404	0
42 Brown University	3,499	3,858	3,651	3,222	0	3,465	0	34
43 Princeton University	3,454	3,289	3,503	3,105	2,126	1,328	0	0
44 Stanford University	3,218	3,032	3,133	2,169	0	2,220	998	0
45 Cornell University	3,120	4,935	4,607	4,132	0	2,340	0	780
46 Univ of South Florida	3,080	1,983	2,323	2,495	0	96	2,984	0
47 US Naval Postgrad School	2,981	3,862	2,906	3,294	1,316	0	1,665	0
48 Tufts University	2,937	2,049	2,062	1,249I	0	6	0	2,931
49 University of N Dakota	2,874	2,257	2,532	2,534I	2,768	29	0	77
50 University of Minnesota	2,790	2,708	2,273	1,703	0	2,790	0	0
Total, 1st 50 insts.	538,312	486,331	448,966	431,389	106,564	144,798	233,402	53,548

See footnotes at end of table.

Table B-50. Federally financed R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Environmental sciences total				1989 subfields			
	1989	1988	1987	1986	Atmos-pheric	Earth sciences	Ocean-ography	Other
51 Univ of NC at Chapel Hill	2,666	2,412	2,256	2,408	0	1,580	1,086	0
52 Univ of South Carolina	2,612	2,342	1,851	3,599	0	1,017	1,595	0
53 College of William & Mary	2,601	2,472	2,145	2,066	0	0	2,601	0
54 U of MD Center For EES	2,519	2,542	2,629	2,227	0	0	2,297	222
55 University of Oklahoma	2,494	2,281	2,152	1,710	1,476	1,018	0	0
56 Ohio State University	2,465	2,195	2,166	1,565	0	932	0	1,533
57 San Jose State University	2,360	1,998	1,812I	1,706I	6	0	2,354	0
58 Univ of Cal Santa Cruz	2,270	2,846	2,248	1,967	0	1,059	1,010	201
59 N C State Univ at Raleigh	2,257	2,426	3,119	2,969	0	0	902	1,355
60 University of Utah	2,238	2,166	1,506	1,359	993	1,245	0	0
Total, 1st 60 insts.	562,794	510,011	470,850	452,965	109,039	151,649	245,247	56,859
61 Univ of Maine Orono	2,236	1,061	2,061	1,021	0	1,355	808	73
62 Fairleigh Dickinson Univ	2,230I	3,099	2,264	1,250	0I	0I	2,196I	34I
63 Duke University	2,112	1,909	1,617	1,561	0	214	1,898	0
64 University of Wyoming	2,055	2,025	1,733	1,733	906	802	0	347
65 University of Oregon	2,048	550	499	460	0	699	1,349	0
66 Univ of Cal Berkeley	2,011	1,432	1,489	1,845	0	2,011	0	0
67 N Mex Inst Mining & Tech	1,897	788	1,155	1,342	1,353	544	0	0
68 University of Florida	1,820	1,827	1,466	1,337	0	472	1,289	59
69 Rice University	1,808	1,950	1,223I	1,118I	0	431	0	1,377
70 Univ of Nevada - Reno	1,800	2,500	1,240	955I	0	1,778	0	22
Total, 1st 70 insts.	582,811	527,152	485,597	465,587	111,298	159,955	252,787	58,771
71 VA Polytech Inst & St U	1,694	816	1,405	1,979	0	1,694	0	0
72 Oregon Graduate Institute	1,595	1,740	1,651	1,541I	677	0	0	918
73 University of Georgia	1,574	1,437	1,653	1,494	0	413	1,161	0
74 Purdue University	1,558	1,288	1,346	1,190	388I	588I	470I	112I
75 New Mexico State Univ	1,501	1,500	549	462	1,339	162	0	0
76 Univ of Wis-Superior	1,495	1,309	1,412	1,251	0	0	0	1,495
77 Yale University	1,482	1,643	1,525	1,489E	563	623	222	74
78 Washington University	1,470	1,379	1,216	1,414	0	1,470	0	0
79 Univ of Nebraska-Lincoln	1,469	2,386	2,190	1,706	408	1,061	0	0
80 Univ of Massachusetts	1,396	1,199	1,139	1,154	0	1,038	0	358
Total, 1st 80 insts.	598,045	541,849	499,683	479,267	114,673	167,004	254,640	61,728
81 Wentworth Inst of Tech	1,383	1,457	1,431I	1,405I	1,383	0	0	0
82 S Dak Sch Mines & Tech	1,367	1,068	971	814	1,367	0	0	0
83 Drexel University	1,278	738	709	563	1,278	0	0	0
84 Univ of P R-Mayaguez	1,067	1,075	392	366I	19	120	928	0
85 Univ of Wis-Milwaukee	1,047	836	1,009	730	0	70	952	25
86 Univ of Cal Riverside	981	965	862	767	0	981	0	0
87 Nova University	878	746	686	577I	0	0	878	0
88 Old Dominion U Res Fdn	874	650	539	927I	0	159	715	0
89 Rutgers the St Univ of NJ	804	1,000	1,372	1,260	6	135	0	663
90 Northwestern University	794	866	514	555	0	794	0	0
Total, 1st 90 insts.	608,518	551,250	508,168	487,231	118,726	169,263	258,113	62,416
91 University of New Mexico	788	871	584	664	252	536	0	0
92 Univ Alabama Huntsville	670	336	66	57	670	0	0	0
93 Univ. Of Tennessee System	668	494	616	289	78	590	0	0
94 University of Idaho	653	315	198	308	0	530	0	123
95 University of Kansas	645	716	1,044	838	0	460	0	185
96 Univ of North Texas	634	794	1,161	211	0	0	0	634
97 Univ of Cal Davis	626	677	932	588	0	626	0	0
98 Rensselaer Polytech Inst	578	488	343	239I	0	452	126	0
99 St Louis University	578	442	695I	646I	0	578	0	0
100 Boston College	567	780	798	468I	0	567	0	0
Total, 1st 100 insts.	614,925	557,163	514,605	491,539	119,726	173,602	258,239	63,358
Total, all other sampled insts.	17,469	25,623	26,164	23,421	1,050	11,168	1,011	4,240
Estimated total non-sampled insts.	12,296	0	0	0	4,118	1,299	6,673	207

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-51. Total and federally financed R&D expenditures in the mathematical sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	214,248	198,833	176,871	151,904	155,929	149,216	131,377	114,368
1 Johns Hopkins Univ	35,960	35,951	29,214	27,310	35,870	35,841	29,118	27,274
2 Univ of MD College Park	7,956	7,253	6,875	6,116	1,562	1,263	1,170	917
3 Rutgers the St Univ of NJ	6,114	6,012	4,164	3,407	2,345	2,926	2,126	1,818
4 Brown University	5,453	5,441	3,838	2,323	4,720	5,041	3,705	2,286
5 University of Washington	5,436	4,122	4,071	3,590	4,902	3,750	3,452	2,687
6 George Washington Univ	5,260	4,109	3,607	2,981I	5,064	3,985E	3,470	2,882I
7 Cornell University	5,194	5,436	4,254	1,625	3,930	4,312	3,320	1,403
8 New York University	4,824	6,701	6,077	5,472	4,422	6,219	5,533	5,125
9 University of Minnesota	4,704	4,329	3,746	3,272	4,013	3,768	3,194	2,617
10 Iowa St U of Sci & Tech	4,184	3,671	3,479	2,560	1,631	1,374	1,339	953
Total, 1st 10 insts.	85,087	83,025	69,325	58,656	68,459	68,479	56,427	47,962
11 Univ of Cal Berkeley	3,911	3,643	3,377	2,956	3,337	3,169	3,091	2,715
12 Univ of Wis-Madison	3,619	4,188	3,998	4,301	2,390	2,777	2,843	3,296
13 Princeton University	3,320	2,674	2,190	1,862	2,196	1,996	1,836	1,441
14 N C State Univ at Raleigh	3,091	2,608	2,512	2,373	1,208	1,022	961	837
15 Univ of Cal Los Angeles	3,009	2,655	2,143	1,507	2,899	2,504	2,091	1,474
16 Stanford University	2,900	2,855	2,711	2,401	2,602	2,598	2,522	2,202
17 Louisiana State Univ	2,562	2,723	2,433	2,449	224	195	220	172
18 Boston College	2,500	2,062	1,599	1,531I	2,372	2,056	1,528	1,441I
19 Florida State University	2,494	2,337	2,128	1,995	638	671	574	762
20 VA Polytech Inst & St U	2,374	1,738	1,547	1,162	1,371	994	920	554
Total, 1st 20 insts.	114,867	110,508	93,963	81,193	87,696	86,461	73,013	62,856
21 Mass Inst of Technology	2,300	2,194	2,474	2,285	2,215	2,126	2,414	2,255
22 Univ of Ill Urbana	2,242	1,872	2,382	1,804	1,490	1,317	1,521	1,149
23 Harvard University	2,174	1,362	1,621	1,414	1,773	1,362	1,621	1,414
24 University of Florida	1,994	1,604	1,375	1,370	1,427	1,232	1,106	1,102
25 Purdue University	1,967	1,793	1,880	1,279	1,695	1,314	1,291	1,132
26 Carnegie-Mellon Univ	1,922	1,709	1,190	1,487	1,671	1,617	1,120	1,296
27 UT MD Anderson Cancer Ctr	1,917	1,719	1,676	1,705	970	788	749	795
28 University of Chicago	1,912	1,742	1,837	1,256	1,486	1,479	1,557	1,244
29 Clemson University	1,850	1,747	1,839	767	592	664	1,020	449
30 University of Arizona	1,850	1,839	1,152	727	1,509	1,563	991	644
Total, 1st 30 insts.	134,995	128,089	111,389	95,287	102,524	99,923	86,403	74,336
31 Univ. Of Tennessee System	1,808	1,975	785	292	452	561	278	83
32 University of Georgia	1,729	1,472	1,484	1,509	355	389	369	244
33 Pennsylvania State Univ	1,725	1,181	1,245	932	1,118	930	907	772
34 Univ of Ill Chicago	1,657	1,453	1,294	877	1,229	1,130	1,003	696
35 University of Michigan	1,646	1,590	1,557	1,189	1,392	1,488	1,404	1,117
36 Rensselaer Polytech Inst	1,561	1,291	768	944I	919	648	433	578I
37 Univ of Cal San Diego	1,553	1,505	1,478	1,136	1,525	1,448	1,449	1,066
38 SUNY at Stony Brook	1,513	1,350	1,069	1,164	1,014	988	971	757E
39 Univ of Massachusetts	1,505	1,224	1,066	721	1,352	1,175	983	600
40 Univ of NC at Chapel Hill	1,492	1,372	1,349	1,273	1,462	1,290	1,321	1,199
Total, 1st 40 insts.	151,184	142,502	123,484	105,324	113,342	109,970	95,521	81,448
41 Univ Alabama Huntsville	1,472	804	670	54	934	709	662	20
42 Ohio State University	1,393	1,113	881	1,081	1,169	872	678	913
43 Yale University	1,279	1,152	932	973E	1,138	1,067	883	930E
44 Indiana University	1,236	1,256	815	653	751	661	542	461
45 Univ of Cal Santa Barbara	1,232	1,285	1,108	621	937	894	759	414
46 University of Virginia	1,216	960	748	677	964	797	603	518
47 Rice University	1,192	1,191	825I	753I	1,155	1,191	823I	752I
48 Texas A & M University	1,187	859	1,759	1,145E	1,041	788	604	821
49 Columbia Univ Main Div	1,164	1,125	1,364	1,441	1,127	1,100	1,352	1,439
50 University of Utah	1,070	1,015	1,213	1,151	847	917	1,087	1,070
Total, 1st 50 insts.	163,625	153,262	133,799	113,873	123,405	118,966	103,514	88,786

See footnotes at end of table.

Table B-51. Total and federally financed R&D expenditures in the mathematical sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 Univ of Southern Cal	1,054	1,051	867	625	841	708	578	332
52 Georgia Institute of Tech	1,046	656	684	436	587	392	358	242
53 Univ. of Colorado	1,017	1,042	928	349	990	995	760	305
54 Washington University	972	1,046	995	950	832	944	829	866
55 Univ of Texas at Austin	947	708	794	799	651	513	659	673
56 Wright State University	926	540	158	88	560	299	53	78
57 University of Pittsburgh	858	1,472	1,568	1,559	685	1,307	1,358	1,404
58 U of Houston	835	697	769	403	486	525	568	230
59 University of Iowa	833	905	802	676	538	645	551	459
60 University of Wyoming	817	175	294	365	801	157	292	272
Total, 1st 60 insts.	172,930	161,554	141,658	120,123	130,376	125,451	109,520	93,647
61 Colorado School of Mines	802	633	759	521	503	286	467	321
62 Michigan State University	760	895	887	766	585	694	645	578
63 Univ of Ark Fayetteville	750	632	707	575	138	84	59	69
64 Univ of Pennsylvania	750	699	1,003	866	741	699	975	749
65 Northwestern University	736	590	570	674	655	546	529	651
66 US Naval Postgrad School	722	672	765	411	722	672	765	411
67 Univ of Cal Davis	713	694	823	454	571	517	458	218
68 University of Connecticut	711	498	406	209	394	282	217	130
69 Univ of Cal Riverside	682	659	642	416	347	365	358	137
70 Oregon State University	676	648	639	629I	469	415	345	276I
Total, 1st 70 insts.	180,232	168,174	148,859	125,644	135,501	130,011	114,338	97,187
71 Kent State University	637	212	236	250	408	132	199	188
72 California Inst of Tech	623	484	517	596	604	467	501	596
73 University of Oklahoma	586	773	523	460	205	263	134	87
74 Wesleyan University	584	232	58	56	144	149	47	48
75 Tulane University	577	231	221	209	400	139	131	148
76 Univ of South Carolina	577	497	1,390	322	371	298	340	211
77 The University of Alabama	571	452	503	428	32	34	62	20
78 Arizona State University	569	239	225	232	433	213	159	119
79 Union College (NY)	562	567	353I	193I	49I	23I	18I	17I
80 Brandeis University	555	442	565I	499I	487	375	424I	379I
Total, 1st 80 insts.	186,073	172,303	153,450	128,889	138,634	132,104	116,353	99,000
81 University of Delaware	546	645	666	549	433	457	508	437
82 Drexel University	535	490	409	508	78	38	67	131
83 Boston University	528	778	971	962	433	633	959	879
84 Duke University	524	404	287	227	454	399	258	227
85 San Diego State Univ	520	567	426	195	329	358	324	86
86 University of Kentucky	505	467	344	338	476	424	307	329
87 Washington State Univ	486	428	467	535	367	403	418	503
88 Texas Tech University	463	295	315	243	207	174	176	104
89 University of Notre Dame	461	282	269	188	424	264	250	141
90 Clarkson University	456	616	772	371	425	577	722	320
Total, 1st 90 insts.	191,097	177,275	158,376	133,005	142,260	135,831	120,342	102,157
91 Univ Alabama Birmingham	439	299	286	37	118	193	18	37
92 Kans St U - Ag & App Sci	438	404	393	397	109	107	126	108
93 Univ of Southwestern LA	435	338	408	352I	75	25	22	10I
94 CUNY Grad Sch & Univ Ctr	427	441	673	698	132	249	673	688
95 U of MD Baltimore County	423	269	145	83	406	267	141	73
96 Colorado State University	409	330	377	246	312	229	351	209
97 Univ of Missouri Rolla	408	446	485	438	21	72	84	89
98 University of Cincinnati	405	528	156	100	237	340	77	63
99 Rockefeller University	403	461	457	14	30	39	79	0
100 Dartmouth College	367	220	58	76I	242	189	53E	65I
Total, 1st 100 insts.	195,251	181,011	161,814	135,446	143,942	137,541	121,966	103,499
Total, all other sampled insts.	16,331	17,822	15,057	16,458	10,547	11,675	9,411	10,869
Estimated total non-sampled insts.	2,666	0	0	0	1,440	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-52. Total and federally financed R&D expenditures in the computer sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	467,729	410,839	373,086	322,874	317,883	289,270	257,092	232,486
1 Johns Hopkins Univ	68,832	54,337	51,644	49,403	68,748	54,206	51,595	49,362
2 Carnegie-Mellon Univ	45,946	39,261	35,076	28,910	32,412	29,765	26,531	19,129
3 Univ of Southern Cal	32,092	27,896	22,472	22,566	28,850	25,771	21,031	19,494
4 Georgia Institute of Tech	17,522	13,325	10,030	10,085	9,836	7,195	5,262	5,588
5 Cornell University	16,325	14,102	12,648	10,369	12,433	11,044	9,845	8,461
6 Univ of Ill Urbana	14,721	14,668	14,592	13,806	7,291	6,786	6,719	6,536
7 Stanford University	12,752	13,665	12,275	12,462	11,397	12,186	10,631	10,908
8 Mass Inst of Technology	11,303	10,295	10,554	10,869	8,447	7,914	7,994	8,221
9 Univ of Texas at Austin	10,479	10,322	11,200	8,952	3,456	3,588	4,558	3,819
10 Syracuse University	8,776	12,956	9,517	818	4,287	9,730	4,823	605
Total, 1st 10 insts.	238,748	210,827	190,008	168,240	187,157	168,185	148,989	132,123
11 Univ of Massachusetts	8,213	7,913	6,948	5,804	6,373E	6,527	5,721	4,482
12 New York University	8,179	7,136	7,003	6,110	7,049	5,875	5,707	5,430
13 New Mexico State Univ	8,154	12,684	20,613	17,158	7,172	9,705	14,949	14,005
14 Yale University	8,065	9,928	5,803	5,932E	7,110	8,997	4,836	5,604E
15 Univ of MD College Park	8,054	7,339	6,649	5,191	2,212	2,310	2,814	2,860
16 Univ of Pennsylvania	7,415	6,836	5,661	4,952	5,163	4,193	4,222	4,278
17 Univ of NC at Chapel Hill	6,563	5,312	4,699	4,485	4,040	3,276	2,685	2,479
18 University of Michigan	6,491	1,459	4,101	3,284	3,395	741	729	559
19 Univ of Cal San Diego	5,521	5,560	4,776	3,470	2,483	2,880	2,749	3,010
20 Univ of Wis-Madison	4,912	2,616	3,173	2,757	4,034	1,684	2,255	2,198
Total, 1st 20 insts.	310,315	277,610	259,434	227,383	236,188	214,373	195,656	177,028
21 Brown University	4,592	4,096	3,797	3,732	1,950	1,549	1,214	1,132
22 West Virginia University	4,544	673	254	213	413	421	132	57
23 Iowa St U of Sci & Tech	4,419	4,865	3,925	2,995	40	0	17	66
24 Princeton University	4,016	4,634	2,590	2,162	3,165	3,145	1,987	1,646
25 Clemson University	4,003	1,530	1,441	851	1,583	951	727	555
26 Columbia Univ Main Div	3,882	3,125	2,554	4,412	2,742	2,241	1,898	3,533
27 Univ of Cal Los Angeles	3,622	4,120	4,797	68	1,989	2,395	3,296	68
28 University of Georgia	3,480	3,444	3,359	2,328	2,154	2,071	2,033	1,638
29 California Inst of Tech	3,458	2,966	1,925	866	2,428	1,921	463	641
30 Washington University	3,355	4,036	3,717	3,114	2,481	3,291	3,354	2,970
Total, 1st 30 insts.	349,686	311,099	287,793	248,124	255,133	232,358	210,777	189,334
31 Purdue University	3,177	3,875	2,127	3,922	2,611	3,455	1,872	3,628
32 Rutgers the St Univ of NJ	3,164	3,256	2,856	2,986	1,522	1,672	1,684	1,746
33 Rice University	3,030	1,799	1,141I	1,037I	2,511	1,381	854I	779I
34 Univ. of Colorado	2,933	2,289	1,923	1,419	1,823	1,787	1,723	1,251
35 Univ Alabama Huntsville	2,928	1,233	217	435	1,837	793	211	375
36 University of Utah	2,920	2,458	2,534	3,309	2,148	1,978	2,329	2,844
37 Univ of Cal Irvine	2,882	2,750	2,107	1,181	2,303	2,055	1,808	910
38 University of Washington	2,820	2,293	2,342	2,039	2,801	2,040	2,143	1,860
39 Texas A & M University	2,805	2,384	2,531	1,569E	1,379	297	4	235
40 University of Virginia	2,756	2,400	1,248	1,090	2,198	1,982	828	611
Total, 1st 40 insts.	379,101	335,836	306,819	267,111	276,266	249,798	224,233	203,573
41 University of Rochester	2,630	2,397	2,260	2,620	2,096	2,216	1,843	2,419
42 Univ. Of Tennessee System	2,586	2,832	1,436	2,238	1,272	733	492	497
43 University of Arizona	2,491	2,038	2,024	2,170	1,857	1,617	1,603	1,997
44 Southern Ill U-Carbondale	2,444	1,714	1,483	2,144	0	0	0	0
45 Univ of Southwestern LA	2,435	284	1,096	1,012I	132	139	219	181I
46 SUNY at Buffalo	2,272	1,901	973	658	1,231	1,290	715	426
47 New York Inst Technology	2,239I	3,162I	3,390	2,644I	0I	181I	191	152I
48 University of Minnesota	1,965	1,363	1,605	1,392	989	858	722	816
49 US Naval Postgrad School	1,732	1,818	1,649	942	1,713	1,818	1,580	942
50 SUNY at Stony Brook	1,699	1,613	1,978	2,029	1,322	1,185	1,688	1,320E
Total, 1st 50 insts.	401,594	354,958	324,713	284,960	286,878	259,835	233,286	212,323

See footnotes at end of table.

Table B-52. Total and federally financed R&D expenditures in the computer sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 Duke University	1,697	1,768	1,469	1,210	1,509	1,379	1,019	939
52 Oregon Graduate Institute	1,645	921	743	609I	1,471	633	415	285I
53 Univ of South Carolina	1,593	222	258	421	67	56	33	52
54 Rensselaer Polytech Inst	1,548	1,715	791	561	950	861	446	34I
55 Univ of Missouri Kan City	1,502	1,502	682	435	0	0	0	0
56 N C State Univ at Raleigh	1,423	715	284	288	790	672	282	190
57 University of Florida	1,406	625	673	516	419	414	445	369
58 Indiana University	1,391	1,010	1,438	612	1,189	908	1,314	533
59 University of Delaware	1,387	530	612	618	1,154	269	73	48
60 University of Connecticut	1,386	1,210	853	355	196	286	238	161
Total, 1st 60 insts.	416,572	365,176	332,516	290,080	294,623	265,313	237,551	214,934
61 The University of Alabama	1,311	1,344	1,837	103	48	244	691	0
62 San Diego State Univ	1,291	1,180	1,213	0	1,123	1,130	1,213	0
63 Harvard University	1,222	1,078	361	578	1,108	1,078	361	578
64 University of Iowa	1,153	1,012	1,210	1,090	175	60	54	60
65 Pennsylvania State Univ	1,135	811	340	813	685	524	225	525
66 Univ of Cal Santa Barbara	1,128	1,342	1,440	986	837	879	837	554
67 Arizona State University	1,110	913	719	354	833	623	168	172
68 University of Oregon	997	688	412	344	719	558	409	341
69 Southern Methodist Univ	972	1,182	1,406	829I	686	1,156E	1,308E	784I
70 Univ of Nebraska-Lincoln	964	753	588	439	359	267	235	128
Total, 1st 70 insts.	427,855	375,479	342,042	295,616	301,196	271,832	243,052	218,076
71 Florida State University	944	658	703	413	160	161	63	31
72 Louisiana State Univ	930	511	523	388	55	65	117	174
73 University of Oklahoma	926	475	1,363	1,099	276	108	472	720
74 N J Inst of Technology	903	553	796	1,014	80	70	0	7
75 VA Polytech Inst & St U	824	1,048	1,021	1,823	226	121	425	676
76 Ohio State University	814	1,040	749	738	574	700	656	560
77 Univ of Rhode Island	814I	794	737	368I	384I	403	599	299I
78 Univ of Missouri Rolla	792	263	176	124	109	0	0	0
79 Univ of South Florida	777	705	414	398	93	282	274	301
80 Univ Alabama Birmingham	755	113	26	0	86	78	0	0
Total, 1st 80 insts.	436,334	381,639	348,550	301,981	303,239	273,820	245,658	220,844
81 Northwestern University	709	769	555	497	339	346	320	376
82 Oklahoma State University	702	135	78	68E	170	0	0	21E
83 Auburn University	695	386	779	1,074	245	200	463	965
84 Georgetown University	660	872	0	0	481	629	0	0
85 University of Lowell	658	273	60	69	0	0	0	33
86 Rockefeller University	653	608	623	641	10	145	250	442
87 Jackson State University	651	384	45	30I	651	384	45	24I
88 University of Chicago	631	442	236	36	611	349	182	36
89 Northeastern University	562	310	183	0	562	310	183	0
90 University of Pittsburgh	556	522	387	184	317	272	203	148
Total, 1st 90 insts.	442,811	386,340	351,496	304,580	306,625	276,455	247,304	222,889
91 Georgia State University	552	485	188	89	0	0	40	54
92 Old Dominion U Res Fdn	546	308	167	146I	294	304	150	131I
93 Oregon State University	537	573	462	217I	168	190	197	51I
94 George Mason University	535	386	884E	619I	76	74	82	81I
95 Univ of Texas at Dallas	534	326	423	128	126	212	212	97
96 College of William & Mary	525	268	105	137	402	225	105	119
97 Univ of Cal Berkeley	511	685	451	110	137	122	32	0
98 Colorado State University	506	448	1,086	2,017	429	380	808	1,736
99 University of Dayton	500	269	214	252	417	223	180	217
100 Air Force Inst of Tech/Nr	477I	434	139	125I	477I	434	139	125I
Total, 1st 100 insts.	448,034	390,522	355,615	308,420	309,151	278,619	249,249	225,500
Total, all other sampled insts.	15,699	20,317	17,471	14,454	7,000	10,651	7,843	6,986
Estimated total non-sampled insts.	3,996	0	0	0	1,732	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-53. R&D expenditures in the life sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Life sciences total				1989 subfields			
	1989	1988	1987	1986	Agri-cultural sciences	Bio-logical sciences	Medical sciences	Other
Total, all institutions	8,079,851	7,257,860	6,532,724	5,892,653	1,289,521	2,609,759	3,836,617	343,954
1 Univ of Cal San Francisco	219,446	193,289	169,436	147,785	0	0	219,446	0
2 University of Minnesota	187,347	173,579	162,125	147,298	46,514	27,600	90,446	22,787
3 Johns Hopkins Univ	180,099	156,663	136,173	116,101	0	51,837	101,414	26,848
4 Univ of Wis-Madison	165,141	155,996	144,686	129,120	22,312	51,369	89,148	2,312
5 Cornell University	163,640	149,475	139,389	124,231	42,913	41,361	71,381	7,985
6 Univ of Cal Davis	162,623	138,273	128,937	111,570	86,517	26,719	49,241	146
7 Univ of Cal Los Angeles	144,933	125,396	107,477	98,379	21	18,085	124,481	2,346
8 University of Michigan	143,184	131,959	113,493	88,114	0	49,229	80,901	13,054
9 University of Washington	136,184	112,899	110,133	111,215	8,197	44,665	69,679	13,643
10 Baylor Col of Medicine	134,681	106,814	90,179	68,993	0	57,948	76,733	0
Total, 1st 10 insts.	1,637,278	1,444,343	1,302,028	1,142,806	206,474	368,813	972,870	89,121
11 Yale University	132,778	122,179	111,541	93,218E	1,234	52,842	78,702	0
12 Stanford University	129,352	117,790	103,083	94,016	0	9,841	118,151	1,360
13 Harvard University	127,771	117,371	105,468	101,660E	0	66,372	61,399	0
14 Univ of Pennsylvania	117,746	111,821	109,717	103,555	0	28,347	89,399	0
15 Washington University	111,638	101,874	89,791	78,314	0	43,074	64,567	3,997
16 University of Georgia	103,667	100,377	89,640	83,133	51,108	39,347	13,212	0
17 Texas A & M University	102,993	101,181	95,841	103,271E	36,144	64,365	2,346	138
18 Duke University	102,646	90,984	70,976	62,661	993	29,050	72,150	453
19 Columbia Univ Main Div	100,063	92,481	86,538	83,890	0	37,100	62,963	0
20 Univ of Cal San Diego	99,224	89,775	81,410	63,897	0	10,850	88,374	0
Total, 1st 20 insts.	2,765,156	2,490,176	2,246,033	2,010,421	295,953	750,001	1,624,133	95,069
21 Univ Alabama Birmingham	91,942	80,302	68,363	58,383	0	24,281	67,537	124
22 Univ of NC at Chapel Hill	91,710	80,351	70,673	63,448	0	43,086	40,375	8,249
23 Ohio State University	91,583	82,221	67,763	60,691	33,914	30,304	22,631	4,734
24 University of Pittsburgh	84,583	74,538	60,019	52,337	0	2,941	63,720	17,922
25 Univ of Cal Berkeley	83,990	72,444	70,457	60,917	42,221	29,188	12,459	122
26 Univ of Southern Cal	82,906	79,493	74,004	61,964	0	3,246	79,660	0
27 UT MD Anderson Cancer Ctr	80,933	71,038	61,366	59,179	0	20,718	45,697	14,518
28 University of Rochester	80,283	75,446	65,007	60,191	0	29,572	46,758	3,953
29 UT SW Medical Ctr-Dallas	79,920	70,392	62,907	52,619	0	32,266	47,654	0
30 University of Iowa	78,000	68,474	56,492	54,050	0	21,356	55,552	1,092
Total, 1st 30 insts.	3,611,006	3,244,875	2,903,084	2,594,200	372,088	986,959	2,106,176	145,783
31 New York University	76,883	73,643	73,700	69,200	0	28,480	35,382	13,021
32 N C State Univ at Raleigh	76,476	68,923	64,507	56,158	42,571	30,363	524	3,018
33 Univ of MD Balt Prof Sch	75,854	68,787	57,931	36,934	0	11,378	60,683	3,793
34 University of Arizona	75,080	68,694	60,148	56,594	17,520	23,099	33,174	1,287
35 Pennsylvania State Univ	74,665	64,332	57,987	55,443	33,423	29,238	11,335	669
36 Yeshiva University	74,486	75,371	73,697	70,188	0	19,366	38,733	16,387
37 University of Chicago	74,047	66,881	60,372	53,842	0	28,137	45,718	192
38 Louisiana State Univ	73,805	69,864	63,853	57,157	33,782	21,399	16,139	2,485
39 Michigan State University	73,509	70,977	70,842	64,005	43,703	21,130	7,933	743
40 University of Florida	73,051	63,488	62,583	59,469	22,480	18,380	29,211	2,980
Total, 1st 40 insts.	4,358,862	3,935,835	3,548,704	3,173,190	565,567	1,217,929	2,385,008	190,358
41 Univ. of Colorado	72,878	64,560	57,596	57,286	0	28,021	41,215	3,642
42 Univ. Of Tennessee System	70,417	56,972	55,325	46,486	21,974	9,450	37,990	1,003
43 University of Connecticut	69,134	56,117	54,443	50,509	4,829	28,694	35,250	361
44 University of Miami	67,952	52,146	47,240	44,040	0	16,586	51,234	132
45 Northwestern University	66,589	58,757	52,821	49,973	0	27,298	32,282	7,009
46 Univ of Massachusetts	66,542	50,167	42,855	38,629	11,562	24,226	28,120	2,634
47 SUNY at Buffalo	65,589	57,475	53,576	50,978	0	35,895	28,506	1,188
48 Rockefeller University	63,371	58,086	56,667	53,294	0	59,636	3,735	0
49 Purdue University	60,119	54,592	51,815	52,532	20,899	30,724	7,894	602
50 Univ of Ill Chicago	59,969	50,315	41,913	36,623	0	19,958	37,224	2,787
Total, 1st 50 insts.	5,021,422	4,495,022	4,062,955	3,653,540	624,831	1,498,417	2,688,458	209,716

See footnotes at end of table.

Table B-53. R&D expenditures in the life sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Life sciences total				1989 subfields			
	1989	1988	1987	1986	Agri-cultural sciences	Bio-logical sciences	Medical sciences	Other
51 Emory University	58,197	55,798	53,914	47,036	0	15,747	31,253	11,197
52 Univ of Missouri Columbia	57,910	52,744	49,151	44,966	27,265	19,471	10,818	356
53 CUNY Mt Sinai Sch of Med	56,856	49,727	46,137	40,193	0	14,118	42,738	0
54 Iowa St U of Sci & Tech	56,107	46,918	41,546	39,519	26,045	20,627	5,353	4,082
55 Case Western Reserve Univ	54,525	47,891	45,114	36,903E	0	18,093	36,432	0
56 Rutgers the St Univ of NJ	54,452	46,470	40,999	34,932	15,832	27,706	6,238	4,676
57 Univ of Med & Dent of N J	54,451	42,027	32,222	30,322	0	13,126	41,325	0
58 Oregon State University	51,912	50,103	47,643	49,792I	30,270	11,989	1,953	7,700
59 Boston University	50,721	48,717	47,224	42,823	0	2,906	47,108	707
60 University of Utah	49,974	46,648	43,372	36,340	0	16,390	32,867	717
Total, 1st 60 insts.	5,566,527	4,982,065	4,510,277	4,056,366	724,243	1,658,590	2,944,543	239,151
61 University of Kentucky	49,192	52,811	44,088	44,095	26,736	1,152	18,590	2,714
62 Univ of Nebraska-Lincoln	49,093	44,801	41,321	40,562	41,360	3,243	4,490	0
63 Vanderbilt University	48,996	45,549	30,650	27,050	0	23,110	25,415	471
64 Univ of Ill Urbana	48,881	45,263	42,910	38,100	23,176	18,934	6,771	0
65 University of Cincinnati	48,512	42,142	37,124	33,427	0	25,483	23,029	0
66 Indiana University	48,378	41,979	37,444	33,819	0	13,430	33,343	1,605
67 VA Polytech Inst & St U	47,777	42,579	37,011	35,378	30,851	11,557	3,887	1,482
68 Univ of Cal Riverside	45,750	44,836	43,796	41,062	39,034	4,378	2,338	0
69 U Tex Hlth Sci Ctr Houstn	44,893	41,649	33,701	30,943	0	15,357	25,826	3,710
70 Univ of Cal Irvine	44,441	39,364	33,426	33,516	0	13,197	31,244	0
Total, 1st 70 insts.	6,042,440	5,423,038	4,891,748	4,414,318	885,400	1,788,431	3,119,476	249,133
71 Georgetown University	43,272	35,828	28,011	21,558	0	10,805	32,467	0
72 University of Virginia	42,708	40,904	34,830	32,647	0	18,327	24,044	337
73 U Tex Hlth Sci Ctr S Anto	41,852	39,673	34,476	33,165	0	16,089	25,763	0
74 Virginia Commonwlth Univ	40,677	40,761	40,524	37,206	0	14,602	25,494	581
75 Wayne State University	40,433	32,995	24,520	20,819	0	1,552	37,980	901
76 Tufts University	40,168	43,514	36,694	33,046I	337	31,732	5,582	2,517
77 Tulane University	38,787	34,718	30,271	30,801	0	4,057	16,991	17,739
78 Washington State Univ	38,711	37,423	37,218	33,220E	19,580	17,761	627	743
79 SUNY at Stony Brook	38,408	40,172	26,096	26,094	0	20,744	16,364	1,300
80 U of VT & State Agr Coll	37,781	33,199	28,409	26,626	4,097	15,783	15,848	2,053
Total, 1st 80 insts.	6,445,237	5,802,225	5,212,797	4,709,500	909,414	1,939,883	3,320,636	275,304
81 Wake Forest University	36,534	30,054	23,099	20,157I	0	840	35,694	0
82 Mississippi State Univ	35,502	31,618	28,187	31,758	32,292	2,315	588	307
83 Kans St U - Ag & App Sci	35,441	32,178	30,041	27,930	27,695	7,148	598	0
84 Medical College of Wis	34,951	33,231	30,218	21,356	0	12,439	22,512	0
85 Mass Inst of Technology	34,322	34,755	32,844	34,263	0	34,049	273	0
86 Temple University	34,089	30,135	27,545	24,012	0	20,002	14,054	33
87 Oregon Hlth Sciences Univ	33,929	28,854	25,651	20,984	0	9,042	23,493	1,394
88 Auburn University	33,627	34,236	30,201	35,289	32,161	0	0	1,466
89 U Tex Med Brnch Galveston	33,502	28,607	24,351	23,312I	0	11,268	15,839	6,395
90 Univ of South Florida	31,204	31,902	30,801	4,546	0	1,442	29,762	0
Total, 1st 90 insts.	6,788,338	6,117,795	5,495,735	4,953,107	1,001,562	2,038,428	3,463,449	284,899
91 SUNY Hlth Sci Ctr - Syrcs	31,125	24,541	21,186	18,065	0	9,787	21,338	0
92 Colorado State University	30,975	27,494	25,649	24,976	12,539	17,414	973	49
93 University of Kansas	29,894	27,132	26,530	25,314	0	19,093	7,596	3,205
94 Thomas Jefferson Univ	29,405	24,231	20,357	12,402	0	10,250	17,961	1,194
95 Oklahoma State University	29,247	26,868	24,398	26,320E	21,140	7,628	352	127
96 Clemson University	28,864	26,278	25,490	24,316	20,098	7,679	159	928
97 Dartmouth College	28,579	25,037	21,983	18,781I	0	877	27,702	0
98 Unif Serv Univ of Hlth Sc	27,062	15,991	12,076	12,960	0	5,207	21,855	0
99 Univ of P R-Mayaguez	26,522	23,822	23,823	22,045I	26,440	82	0	0
100 University of New Mexico	25,353	21,686E	19,676E	14,919	0	15,621	5,789	3,943
Total, 1st 100 insts.	7,075,364	6,360,875	5,716,903	5,153,205	1,081,779	2,132,066	3,567,174	294,345

See footnotes at end of table.

Table B-53. R&D expenditures in the life sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Life sciences total				1989 subfields			
	1989	1988	1987	1986	Agri-cultural sciences	Bio-logical sciences	Medical sciences	Other
101 University of Oklahoma	24,853	23,088	19,473	13,875	0	9,882	13,488	1,483
102 Med Univ of So Carolina	23,017	20,949	19,658	19,278	0	9,685	13,123	209
103 California Inst of Tech	23,012	20,964	18,398	14,886	0	23,012	0	0
104 Utah State University	21,746	18,650	13,791	14,890	12,635	5,284	3,827	0
105 West Virginia University	21,601	18,044	16,846	14,735	7,256	5,676	6,804	1,865
106 University of Idaho	21,398	20,263	16,804	16,727	16,366	3,873	1,159	0
107 Rush University	21,213	19,293	15,904	13,784	0	4,308	16,233	672
108 Univ of Hawaii-Manoa	20,602	19,951	18,342	16,954	8,018	6,714	1,028	4,842
109 The Medical Col of Penna	20,542	15,277	11,081	9,775I	0	11,885	8,657	0
110 SUNY Hlth Sci Ctr - Brkln	20,523	18,374	17,008	15,557I	0	8,825	11,698	0
Total, 1st 110 insts.	7,293,871	6,555,728	5,884,210	5,303,666	1,126,054	2,221,210	3,643,191	303,416
111 Univ of MD College Park	19,742	17,306	16,525	16,479	4,326	10,483	0	4,933
112 Univ of Ark Fayetteville	19,596	17,793	17,291	18,109	18,521	1,007	68	0
113 Univ of Texas at Austin	18,367	16,415	12,974	13,457	0	13,147	3,635	1,585
114 New Mexico State Univ	17,488	15,621	15,671	14,107	9,302	7,131	1,055	0
115 George Washington Univ	17,420	12,692	13,545	10,462I	0	3,548	13,628	244
116 U of Neb Med Ctr at Omaha	17,291	14,684	12,492	11,759	0	12,241	5,050	0
117 Montana State University	17,204	17,056	15,910I	14,759	12,929	4,251	0	24
118 Brown University	16,113	14,115	13,073	10,364	0	2,009	12,798	1,306
119 Texas Tech University	15,826	12,875	12,677	10,990	7,060	4,006	4,728	32
120 Princeton University	15,272	15,035	12,037	8,479	0	15,272	0	0
Total, 1st 120 insts.	7,468,190	6,709,320	6,026,405	5,432,631	1,178,192	2,294,305	3,684,153	311,540
121 Univ of Alaska Fairbanks	15,080	13,260E	12,377I	12,335I	7,538	7,542	0	0
122 University of Mississippi	13,904	12,735	10,784	10,500	0	5,961	7,943	0
123 St Louis University	13,664	9,220	8,057I	7,620I	0	7,517	5,981	166
124 Brandeis University	13,244	12,154	11,382I	10,105I	0	13,244	0	0
125 New York Medical College	12,958	13,817	11,794	9,327	0	7,207	5,751	0
126 Univ of South Carolina	12,659	10,356	9,406	7,166	0	3,124	8,948	587
127 University of Wyoming	12,352	11,578	10,433	11,434	7,206	4,746	400	0
128 Southern Ill U-Carbondale	12,260	11,049	9,439	8,776	2,020	4,660	5,244	336
129 Univ of Maine Orono	12,228	11,316	9,733	12,533	7,063	5,136	0	29
130 Howard University	11,760I	10,711I	9,720E	8,409I	0I	3,564I	8,196I	0I
Total, 1st 130 insts.	7,598,299	6,825,516	6,129,530	5,530,836	1,202,019	2,357,006	3,726,616	312,658
131 Medical Col of Georgia	11,363	9,925	10,053	9,323	0	5,868	5,088	407
132 Carnegie-Mellon Univ	11,008	10,741	9,997	8,239	0	11,008	0	0
133 U of Arkansas Med Sci Cam	10,834	9,851	8,094	6,813	0	3,350	7,484	0
134 Hahnemann University	10,428	8,222	8,756	10,148	0	4,257	6,171	0
135 Univ of Nevada - Reno	9,916	9,389	7,786	8,602I	5,499	3,305	748	364
136 Albany Medical College	9,827	11,694	13,287	12,869I	0	7,194	2,633	0
137 Univ of South Alabama	9,774	7,974	7,195	7,373	5	7,133E	2,332	304
138 Univ of Rhode Island	9,537I	9,449	5,623	4,515I	5,591I	1,044I	2,902I	0I
139 Loyola Univ - Chicago	9,299	6,578	5,627	5,393	0	5,255	4,044	0
140 University of Delaware	8,884	7,981	7,172	6,708	7,123	1,761	0	0
Total, 1st 140 insts.	7,699,169	6,917,320	6,213,120	5,610,819	1,220,237	2,407,181	3,758,018	313,733
141 Florida A & M University	8,240	6,265	6,338	5,127I	3,732	4,508	0	0
142 Eastern VA Medical School	8,125	6,614	4,320	3,441I	0	2,827	5,298	0
143 Creighton University	7,934	7,647	5,902I	4,165I	0	0	7,934	0
144 San Diego State Univ	7,931	7,593	6,050	4,629	1,345	4,309	69	2,208
145 Florida State University	7,708	7,958	7,416	7,080	0	7,273	78	357
146 SUNY Col of Env Sci & For	7,329	5,077	4,996	4,501I	1,685	5,644	0	0
147 South Dakota State Univ	6,888	6,753	6,516	6,374	5,532	917	7	432
148 North Dakota State Univ	6,833	5,328	18,324E	16,437E	4,642	1,781	204	206
149 Med Col of Ohio at Toledo	6,809	5,495	7,652	7,267I	0	5,917	834	58
150 Meharry Medical College	6,564	5,228	4,797	4,137I	0	5,337	1,227	0
Total, 1st 150 insts.	7,773,530	6,981,278	6,285,431	5,673,977	1,237,173	2,445,694	3,773,669	316,994
Total, all other sampled insts.	270,137	276,582	247,293	218,676	43,250	139,334	60,944	26,609
Estimated total non-sampled insts.	36,184	0	0	0	9,098	24,731	2,004	351

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-54. Federally financed R&D expenditures in the life sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Life sciences total				1989 subfields			
	1989	1988	1987	1986	Agri-cultural sciences	Bio-logical sciences	Medical sciences	Other
Total, all institutions	4,772,840	4,318,179	3,829,767	3,487,756	345,890	1,719,858	2,505,390	201,702
1 Univ of Cal San Francisco	159,906	137,747	117,302	105,694	0	0	159,906	0
2 Johns Hopkins Univ	142,388	123,808	112,368	97,162	0	39,742	83,463	19,183
3 University of Washington	110,463	93,526	86,059	82,386	5,743	40,078	56,405	8,237
4 Yale University	109,353	100,762	90,885	71,445E	378	46,848	62,127	0
5 Stanford University	104,921	95,226	85,590	79,268	0	7,707	96,317	897
6 Univ of Cal Los Angeles	102,229	91,085	75,994	71,893	11	14,270	86,738	1,210
7 University of Minnesota	96,625	88,316	79,860	73,035	9,594	18,150	50,682	18,199
8 University of Michigan	95,794	90,958	75,441	61,418	0	35,806	52,164	7,824
9 Harvard University	92,840	86,976	79,708	75,973E	0	56,338	36,502	0
10 Univ of Wis-Madison	88,857	84,190	77,949	70,704	8,646	28,718	50,377	1,116
Total, 1st 10 insts.	1,103,376	992,594	881,156	788,978	24,372	287,657	734,681	56,666
11 Univ of Pennsylvania	87,977	81,143	77,822	73,321	0	24,841	63,136	0
12 Columbia Univ Main Div	86,763	80,221	76,779	75,587	0	33,581	53,182	0
13 Washington University	84,052	76,786	66,897	58,123	0	31,475	49,827	2,750
14 Univ of Cal San Diego	82,372	75,956	68,352	53,613	0	9,828	72,544	0
15 Cornell University	79,348	72,294	67,323	62,382	9,054	20,244	46,499	3,551
16 Duke University	78,886	70,759	56,151	51,284	440	25,353	52,698	395
17 Univ of NC at Chapel Hill	73,117	65,163	57,993	51,380	0	35,094	33,102	4,921
18 Baylor Col of Medicine	69,336	60,825	49,834	46,729	0	28,427	40,909	0
19 Univ Alabama Birmingham	66,448	60,781	53,164	44,590	0	19,295	47,029	124
20 University of Pittsburgh	65,851	57,418	47,532	41,493	0	2,363	50,766	12,722
Total, 1st 20 insts.	1,877,526	1,693,940	1,503,003	1,347,480	33,866	518,158	1,244,373	81,129
21 University of Rochester	64,950	60,537	51,113	46,229	0	26,419	36,567	1,964
22 New York University	61,409	57,094	56,060	50,889	0	23,167	26,760	11,482
23 University of Chicago	60,430	54,530	49,684	47,555	0	24,771	35,651	8
24 Univ of Cal Davis	60,397	51,718	46,363	40,374	16,339	9,536	34,522	0
25 Yeshiva University	58,224	58,813	59,721	56,877	0	15,138	30,277	12,809
26 University of Iowa	57,204	49,428	42,690	39,808	0	15,522	41,372	310
27 Univ of Southern Cal	57,030	55,158	51,370	46,778	0	2,624	54,406	0
28 Univ. of Colorado	54,135	45,937	39,791	37,177	0	22,405	28,778	2,952
29 UT SW Medical Ctr-Dallas	51,254	48,357	45,382	38,504	0	22,577	28,677	0
30 SUNY at Buffalo	50,830	45,330	41,353	39,681	0	30,670	19,227	933
Total, 1st 30 insts.	2,453,389	2,220,842	1,986,530	1,791,352	50,205	710,987	1,580,610	111,587
31 Case Western Reserve Univ	47,224	39,975	36,101	32,204	0	15,419	31,805	0
32 University of Miami	44,710	34,863	26,122	23,339	0	12,565	32,082	63
33 Vanderbilt University	44,539	35,311	23,250	20,584	0	21,140	22,946	453
34 Boston University	44,376	42,686	41,249	37,814	0	2,770	41,372	234
35 Univ of Cal Berkeley	43,518	40,879	39,645	37,096	12,085	23,780	7,653	0
36 Emory University	42,675	40,124	33,447	29,867	0	14,076	18,264	10,335
37 Ohio State University	40,523	33,563	27,367	25,738	7,245	16,783	13,439	3,056
38 University of Utah	40,275	37,428	37,099	31,993	0	13,090	26,660	525
39 University of Arizona	37,351	34,344	30,253	28,447	2,944	13,187	20,216	1,004
40 CUNY Mt Sinai Sch of Med	37,233	32,852	31,024	26,166	0	11,045	26,188	0
Total, 1st 40 insts.	2,875,813	2,592,867	2,312,087	2,084,600	72,479	854,842	1,821,235	127,257
41 Rockefeller University	36,675	33,428	33,631	31,126	0	33,054	3,621	0
42 Univ of MD Balt Prof Sch	35,970	33,102	26,244	21,735	0	5,395	28,776	1,799
43 University of Florida	34,902	33,264	30,173	28,896	8,125	11,315	14,549	913
44 University of Connecticut	34,893	30,412	29,451	28,780	1,447	15,099	18,197	150
45 Indiana University	33,482	27,983	22,595	20,262	0	9,898	22,313	1,271
46 Northwestern University	33,207	31,652	28,715	27,305	0	19,046	12,397	1,764
47 Tufts University	33,168	35,216	30,760	27,236I	337	27,395	3,866	1,570
48 Pennsylvania State Univ	32,852	30,559	27,726	28,056	7,553	17,120	8,098	81
49 University of Georgia	32,523	30,577	26,864	25,141	8,126	21,809	2,588	0
50 Univ of Ill Chicago	32,438	28,268	23,048	20,862	0	12,482	19,222	734
Total, 1st 50 insts.	3,215,923	2,907,328	2,591,294	2,343,999	98,067	1,027,455	1,954,862	135,539

See footnotes at end of table.

Table B-54. Federally financed R&D expenditures in the life sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Life sciences total				1989 subfields			
	1989	1988	1987	1986	Agri-cultural sciences	Bio-logical sciences	Medical sciences	Other
51 Univ of Massachusetts	31,249	25,985	21,944	19,917	3,432	14,597	11,859	1,361
52 University of Cincinnati	30,550	27,067	23,479	21,816	0	17,675	12,875	0
53 Mass Inst of Technology	29,782	29,010	27,205	28,624	0	29,509	273	0
54 Georgetown University	29,642	24,368	18,995	14,258	0	8,801	20,841	0
55 Univ of Cal Irvine	29,586	26,618	23,027	25,020	0	10,054	19,532	0
56 U Tex Hlth Sci Ctr S Anto	29,324	27,528	22,469	22,779	0	12,033	17,291	0
57 Univ. Of Tennessee System	28,595	20,484	17,569	16,875	3,841	5,853	17,992	909
58 Virginia Commonwlth Univ	28,374	29,881	30,222	26,584	0	11,171	17,145	58
59 Wake Forest University	28,334	22,896	18,596	16,233I	0	527	27,807	0
60 U Tex Hlth Sci Ctr Houstn	28,089	26,355	23,358	21,513	0	10,904	15,066	2,119
Total, 1st 60 insts.	3,509,448	3,167,520	2,818,158	2,557,618	105,340	1,148,579	2,115,543	139,986
61 Univ of Med & Dent of N J	27,983	21,849	16,989	15,840	0	9,331	18,652	0
62 Michigan State University	27,682	26,824	25,343	27,275	13,437	11,034	3,018	193
63 University of Virginia	26,963	26,394	23,745	23,239	0	13,455	13,298	210
64 Louisiana State Univ	26,177	23,203	19,257	16,789	848	12,263	10,836	2,230
65 UT MD Anderson Cancer Ctr	25,997	24,278	19,852	18,946	0	8,039	16,117	1,841
66 SUNY at Stony Brook	25,910	28,081	19,541	16,971E	0	15,685	10,223	2
67 U of VT & State Agr Coll	25,864	23,105	20,428	18,124	1,500	12,400	11,015	949
68 Univ of Ill Urbana	25,525	24,010	22,838	17,569	8,019	13,864	3,642	0
69 Purdue University	23,975	22,404	20,138	21,109	4,125	14,614	4,825	411
70 Oregon Hlth Sciences Univ	23,197	17,668	15,102	12,915E	0	7,124	14,938	1,135
Total, 1st 70 insts.	3,768,721	3,405,336	3,021,391	2,746,395	133,269	1,266,388	2,222,107	146,957
71 U Tex Med Brnch Galveston	23,152	19,717	16,738	15,307I	0	9,654	11,241	2,257
72 Texas A & M University	22,469	24,628	17,549	16,596	7,408	14,150	900	11
73 Tulane University	22,147	20,539	17,941	16,609	0	2,241	7,531	12,375
74 Wayne State University	21,744	17,680	12,414	10,544	0	635	20,658	451
75 Medical College of Wis	21,432	19,803	15,551	13,600	0	7,628	13,804	0
76 Oregon State University	21,400	21,394	22,273	22,236I	8,326	6,786	662	5,626
77 Thomas Jefferson Univ	21,311	16,766	14,070	7,307	0	9,554	10,579	1,178
78 Temple University	20,920	18,164	16,039	15,105	0	13,554	7,366	0
79 Colorado State University	20,906	19,144	17,578	17,081	6,802	13,486	618	0
80 Dartmouth College	20,537	19,009	15,200	13,637I	0	675	19,862	0
Total, 1st 80 insts.	3,984,739	3,602,180	3,186,744	2,894,417	155,805	1,344,751	2,315,328	168,855
81 University of Kentucky	19,399	20,760	20,269	16,756	6,830	736	11,458	375
82 N C State Univ at Raleigh	18,937	17,302	17,652	16,964	8,180	8,703	326	1,728
83 Univ of Nebraska-Lincoln	18,552	17,612	17,566	14,014	17,131	764	657	0
84 Univ of Missouri Columbia	17,948	16,116	16,394	15,736	6,483	7,641	3,824	0
85 California Inst of Tech	17,524	14,884	11,561	11,304	0	17,524	0	0
86 University of Kansas	15,951	15,651	12,748	12,115	0	10,751	3,631	1,569
87 Washington State Univ	15,611	13,817	14,342	12,280E	6,226	8,725	433	227
88 Iowa St U of Sci & Tech	14,476	11,419	10,347	9,554	8,287	4,730	521	938
89 George Washington Univ	14,279	10,269E	11,450	8,897I	0	2,839	11,237	203
90 Brown University	12,956	12,343	11,215	7,864	0	1,805	9,966	1,185
Total, 1st 90 insts.	4,150,372	3,752,353	3,330,288	3,019,901	208,942	1,408,969	2,357,381	175,080
91 Unif Serv Univ of Hlth Sc	12,706	12,613	12,076	12,860	0	5,207	7,499	0
92 VA Polytech Inst & St U	12,417	11,329	9,987	10,103	7,210	3,492	675	1,040
93 Univ of P R-Mayaguez	12,003	10,638	8,187	7,631I	11,949	54	0	0
94 Rutgers the St Univ of NJ	11,762	9,374	9,351	8,613	2,618	6,588	2,399	157
95 St Louis University	11,688	7,863	6,734I	6,259I	0	7,224	4,302	162
96 SUNY Hlth Sci Ctr - Brkln	11,552	10,754	10,494	9,946I	0	4,967	6,585	0
97 Med Univ of So Carolina	11,547	10,956	10,797	10,297	0	5,461	5,990	96
98 The Medical Col of Penna	11,514	9,020	7,449	6,289I	0	7,443	4,071	0
99 Univ of Texas at Austin	10,818	9,834	6,895	7,406	0	7,672	2,205	941
100 Brandeis University	10,685	10,181	9,348I	8,384I	0	10,685	0	0
Total, 1st 100 insts.	4,267,064	3,854,915	3,421,606	3,107,689	230,719	1,467,762	2,391,107	177,476

See footnotes at end of table.

Table B-54. Federally financed R&D expenditures in the life sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Life sciences total				1989 subfields			
	1989	1988	1987	1986	Agri-cultural sciences	Bio-logical sciences	Medical sciences	Other
101 Utah State University	10,611	8,693	5,001	4,831	5,650	2,101	2,860	0
102 West Virginia University	10,264	9,621	8,347	9,172	3,573	3,505	1,979	1,207
103 New York Medical College	10,021	11,097	10,038	8,086	0	5,977E	4,044	0
104 Univ of Cal Riverside	10,018	10,305	9,381	9,364	7,217	889	1,912	0
105 University of New Mexico	9,720	9,783	9,946	9,938	0	5,368	3,107	1,245
106 Kans St U - Ag & App Sci	9,602	8,822	8,230	6,590	6,238	3,262	102	0
107 SUNY Hlth Sci Ctr - Syrcs	9,520	7,497	6,427	5,181	0	6,476	3,044	0
108 Princeton University	8,967	9,602	7,846	5,774	0	8,967	0	0
109 University of Oklahoma	8,909	8,526	7,495	6,220	0	5,079	3,830	0
110 Mississippi State Univ	8,710	7,995	7,458	7,830	7,893	671	144	2
Total, 1st 110 insts.	4,363,406	3,946,856	3,501,775	3,180,675	261,290	1,510,057	2,412,129	179,930
111 U of Neb Med Ctr at Omaha	8,572	7,765	7,243	6,643	0	6,872	1,700	0
112 University of Mississippi	8,551	7,836	6,731	6,372	0	4,579	3,972	0
113 Univ of Hawaii-Manoa	8,077	8,381	7,960	7,621	1,316	3,028	724	3,009
114 Florida A & M University	7,692	6,265	6,338	4,697I	3,732	3,960	0	0
115 Hahnemann University	7,478	6,642	6,601	8,569	0	3,875	3,603	0
116 Howard University	7,430I	6,823I	6,174	5,281E	0I	2,176I	5,254I	0I
117 Univ of South Carolina	7,403	6,380	5,840	3,936	0	2,170	4,957	276
118 Medical Col of Georgia	7,392	7,621	7,705	7,331	0	4,785	2,517	90
119 Oklahoma State University	7,307	7,188	4,735	4,018E	4,406	2,764	88	49
120 Albany Medical College	7,259	7,915	8,795	8,483I	0	5,757	1,502	0
Total, 1st 120 insts.	4,440,567	4,019,672	3,569,897	3,243,626	270,744	1,550,023	2,436,446	183,354
121 Rush University	7,159	6,157	7,522	7,052	0	2,676	4,158	325
122 New Mexico State Univ	7,066	5,228	5,778	4,562	2,995	3,847	224	0
123 University of Idaho	6,980	6,588	5,669	6,827	4,906	1,543	531	0
124 Eastern VA Medical School	6,887	5,291	2,611	2,092I	0	2,161	4,726	0
125 Univ of South Alabama	6,587	5,135	4,591	4,854	0	4,789	1,636	162
126 Univ of MD College Park	6,546	5,825	6,108	6,927	1,065	3,253	0	2,228
127 Meharry Medical College	6,397	5,125	4,414	3,759I	0	5,170	1,227	0
128 University of Wyoming	6,321	5,387	4,310	4,795	3,225	3,007	89	0
129 Auburn University	5,875	7,455	4,955	4,752	5,673	0	0	202
130 Med Col of Ohio at Toledo	5,855	4,530	5,756	5,450I	0	5,362	493	0
Total, 1st 130 insts.	4,506,240	4,076,393	3,621,611	3,294,696	288,608	1,581,831	2,449,530	186,271
131 San Diego State Univ	5,844	5,721	4,490	3,397	1,341	3,039	60	1,404
132 Univ of South Florida	5,787	4,393	3,760	3,250	0	569	5,218	0
133 Univ of Rhode Island	5,675I	5,940	4,010	3,079I	3,747I	500I	1,428I	0I
134 Univ of Ark Fayetteville	5,466	5,080	5,048	5,414	5,249	183	34	0
135 Univ of Alaska Fairbanks	5,435	4,779E	4,591I	4,296I	2,239	3,196	0	0
136 U of Arkansas Med Sci Cam	5,258	5,846	4,561	3,773	0	2,678	2,580	0
137 Univ of P R-Med Sci Cmpus	5,235	4,218	5,389	5,078I	0	0	5,235	0
138 Clemson University	5,001	6,032	3,862	3,760	3,144	1,794	20	43
139 University of Oregon	4,876	4,278	3,804	3,369	0	4,698	0	178
140 Carnegie-Mellon Univ	4,838	5,496	4,075	3,699	0	4,838	0	0
Total, 1st 140 insts.	4,559,655	4,128,176	3,665,201	3,333,811	304,328	1,603,326	2,464,105	187,896
141 Montana State University	4,834	7,249	5,568I	3,884	2,834	1,982	0	18
142 Loyola Univ - Chicago	4,695	3,513	3,005	2,629	0	3,149	1,546	0
143 Syracuse University	4,555	4,683	4,653	2,326	0	3,014	119	1,422
144 Texas Tech University	4,549	5,015	4,824	4,325	604	2,548	1,386	11
145 Univ of Nevada - Reno	4,491	5,231	3,930	4,968I	1,497	2,576	302	116
146 Southern Ill U-Carbondale	4,462	4,205	3,244	2,835	112	2,320	1,988	42
147 Morehouse School of Med	4,238	1,815	0	0	0	4,238	0	0
148 University of N Dakota	4,004	3,116	3,380	3,253I	0	360	974	2,670
149 Univ of Maine Orono	3,984	4,109	3,343	5,235	1,452	2,532	0	0
150 Univ of Cal Santa Cruz	3,907	3,710	3,477	3,467	4	3,052	0	851
Total, 1st 150 insts.	4,603,374	4,170,822	3,700,625	3,366,733	310,831	1,629,097	2,470,420	193,026
Total, all other sampled insts.	155,981	147,357	129,142	121,023	34,026	80,103	33,176	8,676
Estimated total non-sampled insts.	13,485	0	0	0	1,033	10,658	1,794	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-55. Total and federally financed R&D expenditures in the agricultural sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	1,289,521	1,181,841	1,120,938	1,089,949	345,890	322,290	297,325	292,378
1 Univ of Cal Davis	86,517	72,084	72,576	63,786	16,339	13,983	15,867	14,373
2 University of Georgia	51,108	49,968	44,535	49,626	8,126	8,273	7,817	7,890
3 University of Minnesota	46,514	41,493	49,867	48,322	9,594	8,155	8,627	9,369
4 Michigan State University	43,703	41,763	39,936	36,918	13,437	12,642	12,027	12,632
5 Cornell University	42,913	39,311	36,638	33,021	9,054	8,005	8,822	8,393
6 N C State Univ at Raleigh	42,571	40,288	37,866	35,232	8,180	8,736	9,424	8,647
7 Univ of Cal Berkeley	42,221	35,351	35,159	27,499	12,085	10,889	11,151	9,610
8 Univ of Nebraska-Lincoln	41,360	38,586	36,188	36,503	17,131	15,860	16,302	12,504
9 Univ of Cal Riverside	39,034	38,172	37,446	35,284	7,217	7,205	6,496	6,512
10 Texas A & M University	36,144	34,274	31,912	31,281E	7,408	7,530	5,922	8,879
Total, 1st 10 insts.	472,085	431,290	422,123	397,472	108,571	101,278	102,455	98,809
11 Ohio State University	33,914	28,602	24,795	21,947	7,245	6,409	5,175	5,376
12 Louisiana State Univ	33,782	34,054	34,110	32,198	848	913	721	739
13 Pennsylvania State Univ	33,423	29,820	27,702	24,435	7,553	8,314	6,360	6,375
14 Mississippi State Univ	32,292	28,112	25,220	28,227	7,893	7,036	6,567	6,785
15 Auburn University	32,161	32,505	28,605	33,706	5,673	7,293	4,789	4,607
16 VA Polytech Inst & St U	30,851	24,233	21,159	20,137	7,210	5,745	4,459	4,359
17 Oregon State University	30,270	28,264	27,952	31,089I	8,326	7,644	10,866	11,406I
18 Kans St U - Ag & App Sci	27,695	24,862	20,695	18,605	6,238	5,391	4,049	2,558
19 Univ of Missouri Columbia	27,265	22,719	19,964	19,351	6,483	5,772	4,751	4,482
20 University of Kentucky	26,736	29,357	24,991	24,651	6,830	9,210	8,852	8,080
Total, 1st 20 insts.	780,474	713,818	677,316	651,818	172,870	165,005	159,044	153,576
21 Univ of P R-Mayaguez	26,440	23,785	22,933	21,375I	11,949	10,610	7,630	7,198I
22 Iowa St U of Sci & Tech	26,045	21,244	17,331	21,863	8,287	5,221	3,967	4,704
23 Univ of Ill Urbana	23,176	22,036	20,706	18,496	8,019	7,389	7,096	6,073
24 University of Florida	22,480	20,025	18,974	17,737	8,125	7,519	7,258	7,846
25 Univ of Wis-Madison	22,312	21,431	19,253	16,000	8,646	8,514	8,212	6,130
26 Univ. Of Tennessee System	21,974	20,108	18,577	16,609	3,841	3,992	3,788	3,570
27 Oklahoma State University	21,140	16,705	16,848	17,703E	4,406	4,137	2,557	2,046E
28 Purdue University	20,899	19,257	20,647	24,625	4,125	3,995	4,053	5,470
29 Clemson University	20,098	17,692	16,899	17,162	3,144	3,680	2,285	2,099
30 Washington State Univ	19,580	19,763	27,323	22,193E	6,226	5,508	7,690	4,745E
Total, 1st 30 insts.	1,004,618	915,864	876,807	845,581	239,638	225,570	213,580	203,457
31 Univ of Ark Fayetteville	18,521	16,888	16,481	17,329	5,249	4,884	4,803	5,202
32 University of Arizona	17,520	14,180	12,710	13,745	2,944	2,408	1,891	1,744
33 University of Idaho	16,366	16,690	13,882	13,795	4,906	4,998	4,545	5,583
34 Rutgers the St Univ of NJ	15,832	14,785	13,910	13,698	2,618	2,622	3,191	3,195
35 Montana State University	12,929	13,139	12,514I	11,883	2,834	5,082	3,863I	2,640
36 Utah State University	12,635	10,707	9,672	10,773	5,650	4,148	3,394	3,393
37 Colorado State University	12,539	10,897	10,060	10,974	6,802	5,933	5,373	5,652
38 Univ of Massachusetts	11,562	11,234	9,811	9,651	3,432	3,301	2,973	3,063
39 New Mexico State Univ	9,302	8,993	8,725	9,271	2,995	2,483	2,573	2,711
40 University of Washington	8,197	6,721	7,259	8,306	5,743	4,628	4,149	4,867
Total, 1st 40 insts.	1,140,021	1,040,098	991,831	965,006	282,811	266,057	250,335	241,507
41 Univ of Hawaii-Manoa	8,018	7,379	7,041	6,750	1,316	998	803	605
42 Univ of Alaska Fairbanks	7,538	6,628E	6,201I	6,196I	2,239	1,969E	2,193I	2,071I
43 West Virginia University	7,256	6,848	6,505	5,182	3,573	3,594	3,517	3,607
44 University of Wyoming	7,206	7,184	6,581	7,191	3,225	3,270	2,511	3,039
45 University of Delaware	7,123	6,439	5,773	5,376	1,423	1,347	1,374	1,487
46 Univ of Maine Orono	7,063	6,201	5,949	6,923	1,452	1,416	1,334	3,030
47 Texas Tech University	7,060	5,594	5,883	4,522	604	536	168	137
48 Univ of Rhode Island	5,591I	5,597	2,665	2,327I	3,747I	3,922	2,230	1,480I
49 South Dakota State Univ	5,532	5,353	5,349	5,013	1,876	1,810	1,697	1,996
50 Univ of Nevada - Reno	5,499	4,881	2,464	5,197I	1,497	1,809	1,111	2,981I
Total, 1st 50 insts.	1,207,907	1,102,202	1,046,242	1,019,683	303,763	286,728	267,273	261,940

See footnotes at end of table.

Table B-55. Total and federally financed R&D expenditures in the agricultural sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 University of Connecticut	4,829	3,817	2,789	2,424	1,447	1,148	932	864
52 North Dakota State Univ	4,642	2,942	6,221E	5,638E	2,227	1,362	819E	562E
53 Univ of MD College Park	4,326	4,359	4,417	4,071	1,065	1,133	1,218	1,422
54 U of VT & State Agr Coll	4,097	3,997	3,384	3,128	1,500	1,451	1,506	1,356
55 Florida A & M University	3,732	2,750	2,717	2,131I	3,732	2,750	2,717	2,101I
56 Univ of New Hampshire	3,044	3,082	2,983	2,848	1,259	1,475	1,292	1,150
57 U of MD Eastern Shore	2,815	1,291	1,254	1,085	2,074	1,291	1,254	1,085
58 Alabama A & M University	2,762	3,843	1,555	2,048I	1,956	3,127	1,377	1,892I
59 Lincoln University	2,500E	NA	NA	NA	2,424E	NA	NA	NA
60 Langston University	2,349	NA	NA	NA	1,961	NA	NA	NA
Total, 1st 60 insts.	1,243,003	1,128,283	1,071,562	1,043,056	323,408	300,465	278,388	272,372
61 NC Ag & Tech State Univ	2,348	2,794	1,803	2,416	2,299	2,791	1,638	2,355
62 Michigan Tech University	2,309	1,728	950	691	641	393	208	64
63 Virginia State University	2,093	1,882	1,702I	1,594I	1,579	1,882	1,702I	1,594I
64 University of Montana	2,076	2,191E	2,500	2,417I	914	965E	1,000	1,001I
65 Southern Ill U-Carbondale	2,020	1,715	1,625	1,470	112	131	131	178
66 Texas A & I University	1,923	1,872	1,749I	1,637I	225	320	296I	256I
67 Southern U & A&M College	1,812	1,718	1,397	1,983	1,469	1,718	1,397	1,983
68 Alcorn State University	1,766	950I	889I	868I	1,766	950I	889I	868I
69 Tuskegee University	1,710I	1,203	883	441I	1,599I	1,141	837	418I
70 SUNY Col of Env Sci & For	1,685	2,976	2,948	1,927I	126	257	208	99I
Total, 1st 70 insts.	1,262,748	1,147,312	1,088,008	1,058,500	334,138	311,013	286,694	281,188
71 Tennessee State Univ	1,665	1,622	1,474	1,474	1,608	1,596	1,472	1,473
72 San Diego State Univ	1,345	1,279	946	1,305	1,341	1,277	940	1,302
73 Northern Arizona Univ	1,333	1,219	1,110	489	242	275	337	269
74 Kentucky State University	1,303	547	247	741I	1,303	547	247	741I
75 Yale University	1,234	930	767	776E	378	344	224	178E
76 Univ of Ark Pine Bluff	1,148	1,199	1,047	1,007	1,148	1,199	1,047	1,007
77 Duke University	993	1,135	978	1,273	440	430	505	811
78 U of the Virgin Islands	980	960	2,153E	1,471	980	960	1,246E	826
79 Univ of Cal Santa Cruz	792	750	604	547	4	3	3	0
80 University of D C	760I	681	774	584	439I	409	338	305
Total, 1st 80 insts.	1,274,301	1,157,634	1,098,108	1,068,167	342,021	318,053	293,053	288,100
81 Prairie View A & M Univ	750	630E	588	1,059I	735I	600	558	1,047I
82 Cal Poly St U San Luis Ob	745	244	336I	298I	67	61	48I	43I
83 Brigham Young University	678I	565	470	381I	82I	97	0	0I
84 Delaware State College	638	NA	NA	NA	531	NA	NA	NA
85 Univ of Missouri Sys Off	526	509	563	504	0	0	0	0
86 Southern Univ-New Orleans	390E	NA	NA	NA	348E	NA	NA	NA
87 Arkansas State University	355	189	192I	183I	0	0	0I	0I
88 Tufts University	337	365E	308E	0I	337	358E	308E	0I
89 Univ of Wis-Stevens Point	297	206	108I	105I	115	72	31I	33I
90 Univ of Southwestern LA	283	265	272	237I	60	81	13	24I
Total, 1st 90 insts.	1,279,300	1,160,607	1,100,945	1,070,934	344,296	319,322	294,011	289,247
91 Fort Valley State College	246E	NA	NA	NA	224E	NA	NA	NA
92 Tougaloo College	136E	NA	NA	NA	123E	NA	NA	NA
93 Stephen F Austin St Univ	114	66	40	363I	0	0	0	154I
94 Inst Paper Sci and Tech	103I	101	104	119	0I	0	0	0
95 SUNY College Brockport	55	0	0I	0I	34	0	0I	0I
96 CUNY Bernard Baruch Col	53	0	0I	0I	48	0	0I	0I
97 Sam Houston State Univ	47	16	7	14	34	6	0	0
98 West Texas State Univ	41I	36	52	51	17I	18	28	26
99 Baylor University	36	0	0	14I	0	0	0	0I
100 Sul Ross State University	35	22	16I	16I	0	0I	0I	0I
Total, 1st 100 insts.	1,280,166	1,160,848	1,101,164	1,071,511	344,776	319,346	294,039	289,427
Total, all other sampled insts.	257	20,993	19,774	18,438	81	2,944	3,286	2,951
Estimated total non-sampled insts.	9,098	0	0	0	1,033	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-56. Total and federally financed R&D expenditures in the biological sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	2,609,759	2,372,832	2,132,208	1,937,994	1,719,858	1,589,930	1,411,679	1,305,822
1 Harvard University	66,372	62,859	59,156	50,985	56,338	54,706	53,048	49,764
2 Texas A & M University	64,365	61,696	57,577	61,562E	14,150	14,008	7,594	3,356
3 Rockefeller University	59,636	54,486	53,368	50,251	33,054	31,756	31,564	29,344
4 Baylor Col of Medicine	57,948	37,362	31,076	29,425	28,427	26,762	22,217	21,140
5 Yale University	52,842	50,462	45,351	38,087E	46,848	43,894	38,601	32,287E
6 Johns Hopkins Univ	51,837	47,864	43,639	38,195	39,742	37,732	36,007	31,615
7 Univ of Wis-Madison	51,369	50,888	49,508	45,124	28,718	28,297	26,775	24,932
8 University of Michigan	49,229	48,363	42,426	35,755	35,806	34,979	30,531	26,912
9 University of Washington	44,665	37,230	36,944	34,018	40,078	34,706	32,957	30,493
10 Univ of NC at Chapel Hill	43,086	37,342	32,547	29,093	35,094	31,379	27,497	24,465
Total, 1st 10 insts.	541,349	488,552	451,592	412,495	358,255	338,219	306,791	274,308
11 Washington University	43,074	39,051	32,406	30,788	31,475	28,514	23,060	21,972
12 Cornell University	41,361	38,797	35,742	30,516	20,244	19,639	17,008	15,271
13 University of Georgia	39,347	39,293	35,569	28,499	21,809	20,180	17,614	16,070
14 Columbia Univ Main Div	37,100	35,267	30,344	28,541	33,581	31,150	26,640	25,638
15 SUNY at Buffalo	35,895	34,008	31,632	30,858	30,670	29,182	26,795	26,281
16 Mass Inst of Technology	34,049	34,451	32,552	33,910	29,509	28,744	26,913	28,271
17 UT SW Medical Ctr-Dallas	32,266	27,775	24,305	22,526	22,577	21,218	19,400	18,147
18 Tufts University	31,732	34,375E	28,988E	16,018I	27,395	29,087E	25,411E	14,602I
19 Purdue University	30,724	28,728	25,582	22,074	14,614	14,470	12,896	12,018
20 N C State Univ at Raleigh	30,363	25,764	23,852	18,602	8,703	7,447	6,678	6,389
Total, 1st 20 insts.	897,260	826,061	752,564	674,827	598,832	567,850	509,206	458,967
21 Ohio State University	30,304	26,383	22,213	18,227	16,783	14,031	12,000	10,275
22 University of Rochester	29,572	27,655	24,591	23,238	26,419	24,375	21,849	20,586
23 Pennsylvania State Univ	29,238	23,536	21,140	21,494	17,120	14,762	14,719	14,982
24 Univ of Cal Berkeley	29,188	27,936	25,083	23,991	23,780	22,935	20,456	19,665
25 Duke University	29,050	27,809	24,382	23,005	25,353	24,136	20,981	20,734
26 University of Connecticut	28,694	24,570	23,690	22,566	15,099	13,049	12,962	12,694
27 New York University	28,480	28,284	27,118	21,868	23,167	23,223	22,899	20,227
28 Univ of Pennsylvania	28,347	28,837	28,644	26,831	24,841	23,419	21,047	20,831
29 University of Chicago	28,137	26,193	23,580	24,105	24,771	23,230	20,930	22,058
30 Univ. of Colorado	28,021	26,441	25,030	22,895	22,405	20,811	19,217	17,239
Total, 1st 30 insts.	1,186,291	1,093,705	998,035	903,047	818,570	771,821	696,266	638,258
31 Rutgers the St Univ of NJ	27,706	24,230	23,120	17,847	6,588	5,511	5,361	4,503
32 University of Minnesota	27,600	24,259	22,111	21,914	18,150	15,506	13,933	13,627
33 Northwestern University	27,298	24,616	20,255	17,910	19,046	18,026	14,350	13,000
34 Univ of Cal Davis	26,719	24,768	23,651	22,594	9,536	9,271	8,793	8,799
35 University of Cincinnati	25,483	22,304	20,307	18,288	17,675	15,322	13,561	9,434
36 Univ Alabama Birmingham	24,281	21,972	18,399	14,216	19,295	17,531	15,365	12,315
37 Univ of Massachusetts	24,226	16,644	14,444	14,151	14,597	11,705	10,157	9,220
38 Vanderbilt University	23,110	21,507	13,195	12,479	21,140	17,206	10,550	10,041
39 University of Arizona	23,099	21,264	19,428	17,880	13,187	12,997	11,962	10,878
40 California Inst of Tech	23,012	20,964	18,398	14,886	17,524	14,884	11,561	11,304
Total, 1st 40 insts.	1,438,825	1,316,233	1,191,343	1,075,212	975,308	909,780	811,859	741,379
41 Louisiana State Univ	21,399	19,492	16,165	12,213	12,263	10,814	8,411	7,016
42 University of Iowa	21,356	18,289	15,123	15,369	15,522	13,120	10,781	11,422
43 Michigan State University	21,130	21,317	21,479	20,748	11,034	11,586	10,667	12,246
44 SUNY at Stony Brook	20,744	26,532	17,230	16,550	15,685	18,321	13,637	10,764E
45 UT MD Anderson Cancer Ctr	20,718	17,725	15,262	14,004	8,039	6,790	6,038	4,951
46 Iowa St U of Sci & Tech	20,627	17,525	16,325	12,452	4,730	4,677	4,997	3,997
47 Temple University	20,002	16,478	16,989	13,454	13,554	11,319	11,224	9,389
48 Univ of Ill Chicago	19,958	14,977	13,719	12,918	12,482	9,197	8,539	8,201
49 Univ of Missouri Columbia	19,471	19,205	18,624	14,777	7,641	6,864	7,757	7,271
50 Yeshiva University	19,366	19,596	19,160	18,248	15,138	15,294	15,527	14,788
Total, 1st 50 insts.	1,643,596	1,507,369	1,361,419	1,225,945	1,091,396	1,017,762	909,437	831,424

See footnotes at end of table.

Table B-56. Total and federally financed R&D expenditures in the biological sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 University of Kansas	19,093	16,997	11,159	11,304	10,751	10,472	6,060	6,084
52 Univ of Ill Urbana	18,934	19,152	17,136	14,563	13,864	14,762	13,230	10,743
53 University of Florida	18,380	18,208	18,921	19,631	11,315	11,422	11,015	11,108
54 University of Virginia	18,327	18,339	17,160	16,511	13,455	13,948	13,338	13,211
55 Case Western Reserve Univ	18,093	18,936	18,913	14,780E	15,419	15,365	14,359	12,898
56 Univ of Cal Los Angeles	18,085	15,481	14,378	11,888	14,270	12,192	10,504	9,368
57 Washington State Univ	17,761	16,509	3,691	10,322E	8,725	7,803	3,278	7,056E
58 Colorado State University	17,414	15,751	14,810	13,431	13,486	12,785	11,807	11,053
59 University of Miami	16,586	14,746	13,823	11,409	12,565	10,849	8,818	7,744
60 University of Utah	16,390	13,870	12,603	16,243	13,090	11,341	11,200	14,572
Total, 1st 60 insts.	1,822,659	1,675,358	1,504,013	1,366,027	1,218,336	1,138,701	1,013,046	935,261
61 U Tex Hlth Sci Ctr S Anto	16,089	15,094	13,152	12,698	12,033	11,309	9,455	9,306
62 U of VT & State Agr Coll	15,783	13,851	11,629	10,629	12,400	11,179	9,502	8,105
63 Emory University	15,747	14,533	10,875	9,206	14,076	12,756	9,574	8,623
64 University of New Mexico	15,621	12,440E	9,907E	5,243	5,368	4,708E	3,563	3,559
65 U Tex Hlth Sci Ctr Houstn	15,357	13,713	11,235	12,239	10,904	10,468	8,818	10,208
66 Princeton University	15,272	15,035	12,037	8,479	8,967	9,602	7,846	5,774
67 Virginia Commonwlth Univ	14,602	15,416	15,900	15,603	11,171	12,310	12,335	11,428
68 CUNY Mt Sinai Sch of Med	14,118	11,757	10,955	9,867	11,045	7,813	8,480	7,027
69 Indiana University	13,430	12,802	11,726	9,871	9,898	9,187	8,435	6,542
70 Brandeis University	13,244	12,154	9,024I	8,011I	10,685	10,181	7,396I	6,634I
Total, 1st 70 insts.	1,971,922	1,812,153	1,620,453	1,467,873	1,324,883	1,238,214	1,098,450	1,012,467
71 Univ of Cal Irvine	13,197	11,834	10,048E	10,075E	10,054	9,277	8,025E	8,720E
72 Univ of Texas at Austin	13,147	12,393	10,457	11,175	7,672	7,558	5,768	6,405
73 Univ of Med & Dent of N J	13,126	11,792	10,192	11,507	9,331	8,585	7,525	8,219
74 Medical College of Wis	12,439	11,546	9,074	6,407E	7,628	9,396	6,666	5,848E
75 U of Neb Med Ctr at Omaha	12,241	10,610	9,654	8,633	6,872	6,278	6,124	5,288
76 Oregon State University	11,989	12,828	12,717	14,055I	6,786	7,345	6,392	7,948I
77 The Medical Col of Penna	11,885	9,570	7,501	7,668I	7,443	6,035	4,936	4,767I
78 VA Polytech Inst & St U	11,557	12,198	11,349	10,647	3,492	4,559	4,138	3,803
79 Univ of MD Balt Prof Sch	11,378	10,318	8,689	5,540	5,395	4,965	3,937	3,260
80 U Tex Med Brnch Galveston	11,268	9,491	7,618	7,456I	9,654	8,233	6,314	6,222I
Total, 1st 80 insts.	2,094,149	1,924,733	1,717,752	1,561,036	1,399,210	1,310,445	1,158,275	1,072,947
81 Carnegie-Mellon Univ	11,008	10,741	9,997	8,239	4,838	5,496	4,075	3,699
82 Univ of Cal San Diego	10,850	9,512	8,142	8,418	9,828	8,778	7,419	7,700
83 Georgetown University	10,805	9,690	4,893	2,050	8,801	7,708	3,889	1,500
84 Univ of MD College Park	10,483	8,874	7,819	8,060	3,253	2,973	2,768	3,376
85 Thomas Jefferson Univ	10,250	7,231	6,186	2,520	9,554	5,131	4,447	1,590
86 University of Oklahoma	9,882	9,881	7,686	6,605	5,079	5,014	3,922	3,550
87 Stanford University	9,841	9,593	8,917	7,375	7,707	7,377	7,219	6,133
88 SUNY Hlth Sci Ctr - Syrcs	9,787	7,868	6,429	5,214	6,476	4,766	4,064	3,180
89 Med Univ of So Carolina	9,685	9,858	9,725	9,493	5,461	5,548	6,194	6,040
90 Univ. Of Tennessee System	9,450	6,974	4,927	4,538	5,853	4,256	3,151	2,939
Total, 1st 90 insts.	2,196,190	2,014,955	1,792,473	1,623,548	1,466,060	1,367,492	1,205,423	1,112,654
91 Oregon Hlth Sciences Univ	9,042	7,016	7,083	6,411	7,124	4,634	5,193	4,520E
92 SUNY Hlth Sci Ctr - Brkln	8,825	7,900	7,313	6,382I	4,967	4,624	4,512	4,067I
93 Clemson University	7,679	7,283	7,851	6,502	1,794	2,190	1,547	1,640
94 Oklahoma State University	7,628	9,800	7,442	7,162E	2,764	2,936	2,108	1,327E
95 Univ of Alaska Fairbanks	7,542	6,632E	5,922I	5,868I	3,196	2,810E	2,341I	2,200I
96 St Louis University	7,517	5,025	5,022I	4,716I	7,224	4,708	4,546I	4,225I
97 Florida State University	7,273	7,562	6,847	6,609	3,623	3,764	2,983	2,894
98 New York Medical College	7,207	10,170	9,436	7,834	5,977E	8,555	8,071	6,792
99 Albany Medical College	7,194	6,845	8,358	6,319I	5,757	5,745	6,647	5,003I
100 Kans St U - Ag & App Sci	7,148	6,677	7,627	7,546	3,262	3,257	3,698	3,604
Total, 1st 100 insts.	2,273,245	2,089,865	1,865,374	1,688,897	1,511,748	1,410,715	1,247,069	1,148,926
Total, all other sampled insts.	311,783	282,967	266,834	249,097	197,452	179,215	164,610	156,896
Estimated total non-sampled insts.	24,731	0	0	0	10,658	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-57. Total and federally financed R&D expenditures in the medical sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	3,836,617	3,387,914	3,015,867	2,625,341	2,505,390	2,216,412	1,963,335	1,742,881
1 Univ of Cal San Francisco	219,446	193,289	169,436	147,785	159,906	137,747	117,302	105,694
2 Univ of Cal Los Angeles	124,481	108,769	92,067	85,993	86,738	77,885	64,575	62,163
3 Stanford University	118,151	106,870	93,380	86,065	96,317	87,190	78,189	73,017
4 Johns Hopkins Univ	101,414	86,196	77,431	65,358	83,463	69,812	64,817	55,667
5 University of Minnesota	90,446	83,118	70,258	57,481	50,682	44,829	39,736	32,741
6 Univ of Pennsylvania	89,399	82,970	81,011	76,628	63,136	57,724	56,726	52,480
7 Univ of Wis-Madison	89,148	81,747	74,619	66,941	50,377	46,371	42,576	39,350
8 Univ of Cal San Diego	88,374	80,263	73,268	55,479	72,544	67,178	60,933	45,913
9 University of Michigan	80,901	67,275	56,703	42,516	52,164	46,292	36,328	28,330
10 Univ of Southern Cal	79,660	75,528	69,987	58,703	54,406	52,004	48,251	44,224
Total, 1st 10 insts.	1,081,420	966,025	858,160	742,949	769,733	687,032	609,433	539,579
11 Yale University	78,702	70,787	65,423	54,355E	62,127	56,524	52,060	38,980E
12 Baylor Col of Medicine	76,733	69,452	59,103	39,568	40,909	34,063	27,617	25,589
13 Duke University	72,150	61,542	45,058	32,764	52,698	45,785	34,292	25,227
14 Cornell University	71,381	63,148	67,009	60,694	46,499	40,226	41,493	38,718
15 University of Washington	69,679	58,163	56,106	59,990	56,405	47,678	43,868	41,825
16 Univ Alabama Birmingham	67,537	57,677	49,177	43,274	47,029	42,607	37,012	31,716
17 Washington University	64,567	58,905	54,014	43,830	49,827	45,652	41,552	33,524
18 University of Pittsburgh	63,720	55,823	43,613	37,346	50,766	43,763	35,460	30,565
19 Columbia Univ Main Div	62,963	57,214	56,194	55,349	53,182	49,071	50,139	49,949
20 Harvard University	61,399	53,628	44,743	48,300	36,502	32,270	26,660	26,092
Total, 1st 20 insts.	1,770,251	1,572,364	1,398,600	1,218,419	1,265,677	1,124,671	999,586	881,764
21 Univ of MD Balt Prof Sch	60,683	55,030	46,346	29,547	28,776	26,482	20,995	17,388
22 University of Iowa	55,552	49,106	40,605	37,875	41,372	36,050	31,771	28,111
23 University of Miami	51,234	37,333	33,338	32,554	32,082	24,011	17,302	15,595
24 Univ of Cal Davis	49,241	41,314	32,536	25,040	34,522	28,464	21,703	17,202
25 UT SW Medical Ctr-Dallas	47,654	42,617	38,602	30,093	28,677	27,139	25,982	20,357
26 Boston University	47,108	44,998	44,686	40,325	41,372	39,457	39,010	35,496
27 University of Rochester	46,758	43,594	36,532	34,810	36,567	33,851	27,114	24,132
28 University of Chicago	45,718	40,535	36,723	29,737	35,651	31,300	28,754	25,497
29 UT MD Anderson Cancer Ctr	45,697	42,254	35,947	37,462	16,117	15,822	12,886	13,111
30 CUNY Mt Sinai Sch of Med	42,738	37,970	35,182	30,326	26,188	25,039	22,544	19,139
Total, 1st 30 insts.	2,262,634	2,007,115	1,779,097	1,546,188	1,587,001	1,412,286	1,247,647	1,097,792
31 Univ of Med & Dent of N J	41,325	30,235	22,030	18,815	18,652	13,264	9,464	7,621
32 Univ. of Colorado	41,215	35,188	30,766	33,139	28,778	22,832	19,019	18,884
33 Univ of NC at Chapel Hill	40,375	34,835	30,562	27,687	33,102	28,344	25,163	22,530
34 Yeshiva University	38,733	39,193	38,320	36,495	30,277	30,588	31,055	29,576
35 Univ. Of Tennessee System	37,990	29,200	30,970	24,633	17,992	11,621	9,902	9,763
36 Wayne State University	37,980	31,145	22,611	17,958	20,658	16,935	11,584	9,146
37 Univ of Ill Chicago	37,224	32,492	25,511	21,325	19,222	18,056	13,970	12,056
38 Case Western Reserve Univ	36,432	28,863	26,201	22,123E	31,805	24,523	21,742	19,306
39 Wake Forest University	35,694	29,375	22,472	17,422I	27,807	22,290	18,106	13,604I
40 New York University	35,382	33,471	38,691	36,250	26,760	24,444	26,770	22,039
Total, 1st 40 insts.	2,644,984	2,331,112	2,067,231	1,802,035	1,842,054	1,625,183	1,434,422	1,262,317
41 University of Connecticut	35,250	27,432	27,437	24,852	18,197	16,122	15,396	14,992
42 Indiana University	33,343	28,042	24,883	23,340	22,313	17,773	13,367	13,181
43 University of Arizona	33,174	31,133	26,985	24,405	20,216	17,623	15,575	15,357
44 University of Utah	32,867	31,916	30,223	20,097	26,660	25,426	25,440	17,421
45 Georgetown University	32,467	26,138	23,118	19,508	20,841	16,660	15,106	12,758
46 Northwestern University	32,282	30,005	29,052	28,826	12,397	12,885	13,472	13,392
47 Emory University	31,253	29,123	33,025	29,855	18,264	17,119	15,101	14,354
48 Univ of Cal Irvine	31,244	27,530	23,378E	23,441E	19,532	17,341	15,002E	16,300E
49 Univ of South Florida	29,762	31,037	30,092	3,922	5,218	3,871	3,350	2,904
50 University of Florida	29,211	24,312	22,619	17,798	14,549	13,903	11,242	7,619
Total, 1st 50 insts.	2,965,837	2,617,780	2,338,043	2,018,079	2,020,241	1,783,906	1,577,473	1,390,595

See footnotes at end of table.

Table B-57. Total and federally financed R&D expenditures in the medical sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 SUNY at Buffalo	28,506	22,871	21,503	19,675	19,227	15,792	14,225	13,041
52 Univ of Massachusetts	28,120	20,454	17,456	14,014	11,859	10,037	8,428	7,257
53 Dartmouth College	27,702	24,232	21,170	17,911I	19,862	18,417	14,539	12,902I
54 U Tex Hlth Sci Ctr Houstn	25,826	24,574	20,110	17,881	15,066	14,581	13,048	10,769
55 U Tex Hlth Sci Ctr S Anto	25,763	24,579	21,324	20,467	17,291	16,219	13,014	13,473
56 Virginia Commonwlth Univ	25,494	24,765	24,288	21,603	17,145	17,213	17,670	15,156
57 Vanderbilt University	25,415	22,880	14,385	11,498	22,946	17,195	10,295	8,210
58 University of Virginia	24,044	22,258	17,334	15,794	13,298	12,206	10,148	9,743
59 Oregon Hlth Sciences Univ	23,493	20,728	17,447	13,619	14,938	12,062	8,978	7,620E
60 University of Cincinnati	23,029	19,831	16,595	14,942	12,875	11,745	9,759	12,376
Total, 1st 60 insts.	3,223,229	2,844,952	2,529,655	2,185,483	2,184,748	1,929,373	1,697,577	1,501,142
61 Ohio State University	22,631	20,377	16,340	15,729	13,439	9,866	7,650	7,148
62 Medical College of Wis	22,512	21,685	21,144	14,949E	13,804	10,407	8,885	7,752E
63 Unif Serv Univ of Hlth Sc	21,855	10,357	6,778	7,272	7,499	6,979	6,778	7,202E
64 SUNY Hlth Sci Ctr - Syrcs	21,338	16,673	14,757	12,851	3,044	2,731	2,363	2,001
65 University of Kentucky	18,590	19,476	15,402	14,859	11,458	10,770	10,739	7,828
66 Thomas Jefferson Univ	17,961	15,191	12,177	9,229	10,579	10,456	8,350	5,393
67 Tulane University	16,991	15,202	13,154	13,805	7,531	6,922	5,499	5,055
68 SUNY at Stony Brook	16,364	13,582	8,517	9,197	10,223	9,760	5,895	5,982E
69 Rush University	16,233	13,822	11,056	9,300	4,158	3,243	4,672	4,230
70 Louisiana State Univ	16,139	16,318	13,578	12,746	10,836	11,476	10,125	9,034
Total, 1st 70 insts.	3,413,843	3,007,635	2,662,558	2,305,420	2,277,319	2,011,983	1,768,533	1,562,767
71 U of VT & State Agr Coll	15,848	13,648	11,899	11,165	11,015	9,716	8,854	8,073
72 U Tex Med Brnch Galveston	15,839	13,504	10,986	10,359I	11,241	9,513	8,412	7,380I
73 Temple University	14,054	13,560	10,556	10,549	7,366	6,845	4,815	5,716
74 George Washington Univ	13,628	12,242	9,727	7,659I	11,237	10,179E	7,875	6,304I
75 University of Oklahoma	13,488	11,801	10,492	7,132	3,830	3,508	3,570	2,619
76 University of Georgia	13,212	11,116	9,536	5,008	2,588	2,124	1,433	1,181
77 Med Univ of So Carolina	13,123	11,038	9,754	9,221	5,990	5,407	4,603	4,257
78 Brown University	12,798	11,012	9,638	7,884	9,966	9,456	8,089	5,665
79 Univ of Cal Berkeley	12,459	9,157	10,215	9,427	7,653	7,055	8,038	7,821
80 SUNY Hlth Sci Ctr - Brkln	11,698	10,474	9,695E	8,409I	6,585	6,130	5,982	5,356I
Total, 1st 80 insts.	3,549,990	3,125,187	2,765,056	2,392,233	2,354,790	2,081,916	1,830,204	1,617,139
81 Pennsylvania State Univ	11,335	10,300	8,930	9,396	8,098	7,333	6,560	6,699
82 Univ of Missouri Columbia	10,818	10,499	10,561	10,838	3,824	3,480	3,886	3,983
83 Univ of South Carolina	8,948	7,236	5,920	4,070	4,957	4,191	3,420	1,718
84 The Medical Col of Penna	8,657	5,707	3,580	2,107I	4,071	2,985	2,513	1,522I
85 Howard University	8,196I	7,465I	6,774E	6,990I	5,254I	4,824I	4,366	4,344E
86 University of Mississippi	7,943	7,819	6,862	6,286	3,972	3,844	3,562	2,938
87 Creighton University	7,934	7,647	5,898I	4,163I	2,386	1,828	1,514I	1,210I
88 Michigan State University	7,933	7,301	9,182	6,215	3,018	2,429	2,589	2,397
89 Purdue University	7,894	5,924	4,973	5,459	4,825	3,586	2,895	3,379
90 University of Kansas	7,596	8,140	12,922	12,347	3,631	3,446	5,380	5,073
Total, 1st 90 insts.	3,637,244	3,203,225	2,840,658	2,460,104	2,398,826	2,119,862	1,866,889	1,650,402
91 U of Arkansas Med Sci Cam	7,484	6,766	5,699	4,976	2,580	3,257	2,691	2,409
92 West Virginia University	6,804	4,736	5,020	3,763	1,979	1,665	1,454	1,648
93 Univ of Ill Urbana	6,771	4,075	5,068	5,041	3,642	1,859	2,512	753
94 Univ of P R-Med Sci Cmpus	6,528	5,517	6,893	6,147I	5,235	4,218	5,389	4,829I
95 Rutgers the St Univ of NJ	6,238	4,134	1,619	1,912	2,399	1,197	694	903
96 Hahnemann University	6,171	4,197	5,464	4,816	3,603	3,158	3,589	3,536
97 St Louis University	5,981	3,975	2,946I	2,822I	4,302	2,939	2,100I	1,953I
98 University of New Mexico	5,789	6,102	9,607	9,526	3,107	3,281	6,365	6,281
99 New York Medical College	5,751	3,647	2,358	1,493	4,044	2,542	1,967	1,294
100 Tufts University	5,582	6,047E	5,099E	17,028I	3,866	4,105E	3,585E	12,634I
Total, 1st 100 insts.	3,700,343	3,252,421	2,890,431	2,517,628	2,433,583	2,148,083	1,897,235	1,686,642
Total, all other sampled insts.	134,270	135,493	125,436	107,713	70,013	68,329	66,100	56,239
Estimated total non-sampled insts.	2,004	0	0	0	1,794	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-58. Total and federally financed R&D expenditures in psychology at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	237,945	213,989	187,881	170,705	156,260	140,887	124,222	114,373
1 Univ of Wis-Madison	8,843	7,653	7,492	7,262	7,336	6,419	6,136	5,992
2 Mass Inst of Technology	7,573	8,609	8,425	4,668	6,309	7,353	7,397	3,945
3 Univ of Cal Los Angeles	6,694	8,403	7,936	6,930	5,369	7,035	6,618	5,748
4 University of Minnesota	6,283	5,222	4,690	4,747	3,953	3,754	3,182	2,783
5 Univ of Cal Berkeley	5,933	5,607	5,270	5,297	3,317	3,121	2,667	2,941
6 University of Michigan	5,601	6,818	6,147	6,431	2,948	3,814	2,843	3,246
7 Univ of Ill Urbana	5,420	5,091	4,997	6,216	3,381	3,078	2,978	4,067
8 Rutgers the St Univ of NJ	5,202	4,708	3,850	3,910	2,285	2,244	1,675	1,913
9 Univ of Southern Cal	5,098	3,984	3,537	2,897	3,659	2,748	2,484	2,560
10 Univ. of Colorado	4,957	3,767	4,346	3,708	3,438	2,455	2,954	2,377
Total, 1st 10 insts.	61,604	59,862	56,690	52,066	41,995	42,021	38,934	35,572
11 Univ of MD College Park	4,773	4,148	3,512	3,503	1,380	1,170	868	973
12 University of Rochester	4,767	5,062	3,711	4,223	2,688	3,133	2,441	3,036
13 University of Washington	4,553	3,324	3,023	2,439	4,218	3,088	2,588	2,083
14 Princeton University	4,528	4,408	3,206	1,684	2,377	2,176	2,088	1,356
15 Stanford University	4,081	3,834	3,583	4,033	3,024	2,931	2,950	2,916
16 Carnegie-Mellon Univ	4,007	4,443	3,992	2,822	3,324	3,911	3,229	2,195
17 New York University	3,703	3,205	3,311	2,317	3,591	3,014	2,975	1,817
18 University of Georgia	3,668	2,857	2,504	1,793	1,419	910	684	345
19 University of Dayton	3,075	1,645	53	25	2,562	1,364	45	22
20 Memphis State University	3,029	2,505	1,649	1,328	1,064	573	402	251
Total, 1st 20 insts.	101,788	95,293	85,234	76,233	67,642	64,291	57,204	50,566
21 University of Connecticut	3,017	2,419	2,317	1,354	1,042	830	900	782
22 Univ of Massachusetts	3,008	2,704	2,690	2,426	2,336	2,080	2,105	1,979
23 Florida State University	3,000	2,608	2,403	2,773	1,328	1,125	1,017	1,187
24 Yale University	2,952	2,354	2,837	3,030E	1,292	1,173	1,256	1,519E
25 Univ of Cal Santa Barbara	2,936	2,719	2,837	2,346	2,180	2,002	2,201	1,672
26 SUNY at Albany	2,894	2,696	1,937	1,455	2,471	2,121	1,640	1,254
27 Georgia Institute of Tech	2,891	2,825	1,415	1,198	1,623	1,686	742	664
28 Cornell University	2,875	2,704	2,335	2,088	1,234	1,193	877	790
29 Indiana University	2,795	2,658	2,365	2,056	2,281	2,192	1,934	1,545
30 Pennsylvania State Univ	2,756	2,545	2,151	1,648	1,062	1,137	1,019	923
Total, 1st 30 insts.	130,912	121,525	108,521	96,607	84,491	79,830	70,895	62,881
31 University of Florida	2,674	1,838	1,995	1,524	1,373	1,199	1,206	1,033
32 Univ of Cal San Diego	2,410	2,104	1,709	1,777	1,619	1,368	1,247	913
33 SUNY at Buffalo	2,314	2,066	1,340	688	864	816	727	466
34 Univ of Texas at Austin	2,204	1,864	1,537	1,381	1,690	1,495	1,199	1,030
35 Harvard University	2,123	1,689	1,677	1,743	1,437	1,325	1,188	1,306
36 Univ of South Carolina	2,119	1,320	1,252	688	994	870	968	459
37 Cal Sch Prof Psych-Fresno	1,922	1,015	535	267I	1,566	940	476	238I
38 University of Virginia	1,866	1,704	1,240	1,091	1,535	1,353	897	739
39 Michigan State University	1,739	2,063	1,843	1,021	865	813	546	493
40 Arizona State University	1,727	1,253	1,080	1,098	1,244	908	773	891
Total, 1st 40 insts.	152,010	138,441	122,729	107,885	97,678	90,917	80,122	70,449
41 Purdue University	1,727	1,809	1,322	1,011	1,252	1,351	944	820
42 SUNY at Binghamton	1,714	1,389	1,219	1,347	663	446	322	586
43 Univ of Pennsylvania	1,570	1,306	1,213	1,556	1,570	1,306	1,137	1,354
44 Cal Sch Prof Psych-L A	1,551	616	500	500E	1,383	322	164	164E
45 Vanderbilt University	1,507	1,521	1,602	1,948	1,040	1,128	1,188	1,390
46 Univ of Missouri Columbia	1,461	1,188	915	836	507	487	332	329
47 Univ of South Florida	1,438	1,173	593	735	892	810	405	435
48 University of Oregon	1,405	1,101	1,083	1,141	1,153	942	868	985
49 U of VT & State Agr Coll	1,381	674	625	655	1,048	412	420	391
50 U of Houston	1,347	954	580	326	692	356	280	169
Total, 1st 50 insts.	167,111	150,172	132,381	117,940	107,878	98,477	86,182	77,072

See footnotes at end of table.

Table B-58 Total and federally financed R&D expenditures in psychology at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 Columbia Univ Main Div	1,338	1,086	859	545	1,204	965	759	518
52 Duke University	1,326	1,330	1,228	1,171	1,245	1,124	1,068	1,019
53 Brandeis University	1,283	1,309	1,052I	936I	1,090	1,262	908I	814I
54 University of Iowa	1,269	1,634	1,435	1,159	583	761	926	829
55 University of Miami	1,245	1,159	1,008	423	1,160	965	823	319
56 Colorado State University	1,243	824	411	364	1,114	742	393	347
57 CUNY Grad Sch & Univ Ctr	1,238	606	288	568	730	366	71	355
58 Johns Hopkins Univ	1,193	1,575	1,492	2,224	1,035	1,246	1,236	1,983
59 Oregon Hlth Sciences Univ	1,168	655	411	434	965	572	277	326
60 University of Pittsburgh	1,151	626	593	813	1,017	566	490	661
Total, 1st 60 insts.	179,565	160,976	141,158	126,577	118,021	107,046	93,133	84,243
61 Louisiana State Univ	1,141	1,172	708	547	238	336	190	170
62 Brown University	1,136	1,232	1,133	826	994	1,153	1,072	818
63 University of Kansas	1,086	999	814	905	671	645	540	586
64 University of Denver	1,077	1,310	1,598	1,761	896	1,152	1,296	1,440
65 Georgia State University	1,005	914	870	786	354	284	319	207
66 SUNY at Stony Brook	1,001	992	937	1,178	511	685	881	766E
67 CUNY Hunter College	997	771	716	520	780	539	521	384
68 University of Chicago	967	1,085	1,068	906	713	771	735	728
69 University of Delaware	921	927	900	363	778	730	752	252
70 Wayne State University	915	789	840	776	624	583	564	558
Total, 1st 70 insts.	189,811	171,167	150,742	135,145	124,580	113,924	100,003	90,152
71 Temple University	912	210	203	242	439	56	55	114
72 San Jose State University	883	1,250	635I	598I	871	1,250	635I	598I
73 Texas A & M University	860	807	439	1,201E	535	628	305	1,025
74 Loyola Univ - Chicago	839	1,083	926	699	585	579	495	502
75 Seton Hall University	829I	761I	689I	628I	829I	761I	689I	628I
76 San Diego State Univ	813	783	672	478	382	271	327	180
77 Univ of NC at Chapel Hill	808	648	490	748	722	566	429	601
78 Syracuse University	805	311	264	546	524	180	161	192
79 Northwestern University	792	994	1,158	1,253	708	869	978	1,013
80 University of New Mexico	782	631	482	143	678	531	395	16
Total, 1st 80 insts.	198,134	178,645	156,700	141,681	130,853	119,615	104,472	95,021
81 Tufts University	774	1,978	2,016	1,355I	620	1,254	1,419	992I
82 Washington University	754	672	534	546	543	486	276	466
83 Hahnemann University	730	329	306	546	331	176	191	525
84 VA Polytech Inst & St U	705	964	456	400	366	224	169	199
85 University of Utah	687	629	347	247	424	450	228	159
86 Catholic Univ of America	667	529	194	252	638	490	153	243
87 Univ. Of Tennessee System	660	575	675	350	363	328	484	176
88 The University of Alabama	651	723	739	371	288	366	413	5
89 Univ of Rhode Island	626I	636	652	326I	482I	505	522	261I
90 Univ Alabama Birmingham	623	699	560	437	502	643	542	415
Total, 1st 90 insts.	205,011	186,379	163,179	146,511	135,410	124,537	108,869	98,462
91 Northeastern University	618	773	558	660	525	657	517	659
92 Iowa St U of Sci & Tech	617	883	1,119	759	124	337	471	213
93 Univ of Nebraska-Lincoln	602	581	113	82	270	292	60	40
94 Barnard College	590	454I	429I	406I	561	433I	400I	368I
95 Bowling Green State Univ	564	349	547	562	96	25	250	419
96 Coppin State College	534	NA	NA	NA	245	NA	NA	NA
97 De Paul University	533	403I	173	88I	473	400I	161	73I
98 Rush University	528	534	438	185	423	396	301	139
99 Florida Atlantic Univ	493	424	233	60	393	289	27	60
100 U of MD Baltimore County	475	256	354	223	358	145	199	158
Total, 1st 100 insts.	210,565	191,036	167,143	149,536	138,878	127,511	111,255	100,591
Total, all other sampled insts.	20,715	22,953	20,738	21,169	12,163	13,376	12,967	13,782
Estimated total non-sampled insts.	6,665	0	0	0	5,219	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-59. R&D expenditures in the social sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Social sciences total				1989 subfields			
	1989	1988	1987	1986	Economics	Political science	Sociology	Other
Total, all institutions	636,372	553,238	502,098	462,472	186,376	108,063	118,554	223,379
1 Harvard University	40,675	36,429	30,860	22,521	18,241	18,156	421	3,857
2 University of Michigan	36,860	31,552	31,592	32,210	7,313	11,541	3,519	14,487
3 Univ of Wis-Madison	19,571	19,948	17,708	15,076	7,400	819	4,206	7,146
4 University of Georgia	17,580	15,108	13,672	11,425	8,447	995	1,210	6,928
5 Univ of Cal Berkeley	16,595	15,195	13,664	13,640	113	8,256	1,416	6,810
6 Univ of Pennsylvania	16,267	10,207	11,914	12,922	5,232	993	2,504	7,538
7 Univ of MD College Park	13,900	13,060	11,864	9,755	3,531	2,656	2,591	5,122
8 Univ of Texas at Austin	13,882	9,977	8,768	11,873	3,229	5,414	2,262	2,977
9 Univ of Cal Los Angeles	13,559	15,213	13,986	10,079	513	421	735	11,890
10 Ohio State University	13,197	7,882	3,776	4,435	3,406	1,415	367	8,009
Total, 1st 10 insts.	202,086	174,571	157,804	143,936	57,425	50,666	19,231	74,764
11 Brandeis University	11,456	9,100	7,154I	6,232I	35	211	11,148	62
12 Rutgers the St Univ of NJ	11,285	9,379	8,402	7,071	1,243	5,218	2,410	2,414
13 Texas A & M University	10,912	11,044	10,291	5,305E	6,265	546	2,019	2,082
14 Cornell University	10,414	9,724	9,058	8,118	4,470	110	1,782	4,052
15 Univ of NC at Chapel Hill	10,316	9,231	7,758	6,743	80	0	2,925	7,311
16 Johns Hopkins Univ	10,258	9,141	6,872	6,751	2,763	241	3,675	3,579
17 University of Minnesota	8,455	7,332	7,340	5,205	3,901	1,402	1,386	1,766
18 Duke University	8,310	6,575	3,242	2,001	3,333	2,630	2,086	261
19 Princeton University	8,242	6,693	5,870	4,729	1,894	5,471	877	0
20 Pennsylvania State Univ	7,766	6,847	6,102	6,073	3,289	927	2,261	1,289
Total, 1st 20 insts.	299,500	259,637	229,893	202,164	84,698	67,422	49,800	97,580
21 Washington State Univ	7,581	5,262	1,102	4,079E	5,210	75	1,811	485
22 University of Arizona	7,394	7,366	7,187	6,923	3,898	101	2	3,393
23 Univ of Ill Urbana	7,332	6,992	8,076	8,182	3,058	1,256	124	2,894
24 Temple University	6,675	7,468	5,025	5,365	95	77	6,503	0
25 Columbia Univ Main Div	6,569	3,557	3,748	4,147	1,198	853	4,421	97
26 Purdue University	6,553	6,479	5,421	4,911	5,221	42	871	419
27 Oklahoma State University	6,076	8,219	7,744	5,632E	3,401	67	384	2,224
28 University of Pittsburgh	6,006	4,128	2,912	1,993	474	826	101	4,605
29 Florida State University	5,939	5,302	4,829	4,482	749	963	1,026	3,201
30 Louisiana State Univ	5,757	5,510	5,313	4,265	3,518	683	785	771
Total, 1st 30 insts.	365,382	319,920	281,250	252,143	111,520	72,365	65,828	115,669
31 Univ of South Carolina	5,638	4,392	3,982	3,509	1,868	759	1,768	1,243
32 Iowa St U of Sci & Tech	5,564	3,478	3,027	2,958	2,926	285	2,181	172
33 Univ. Of Tennessee System	5,387	4,326	3,247	3,331	3,660	867	748	112
34 New York University	5,334	3,566	2,856	2,730	1,773	2,075	364	1,122
35 Mass Inst of Technology	5,109	4,857	5,624	4,335	1,717	843	0	2,549
36 Michigan State University	5,105	4,876	4,862	4,312	3,427	76	26	1,576
37 Georgetown University	4,824	4,311	4,925	4,614	138	324	2,320	2,042
38 Colorado State University	4,687	3,767	3,393	2,863	1,183	194	432	2,878
39 VA Polytech Inst & St U	4,588	3,940	3,745	2,973	2,095	241	134	2,118
40 Clemson University	4,584	3,382	3,163	2,440	2,542	1,199	31	812
Total, 1st 40 insts.	416,202	360,815	320,074	286,208	132,849	79,228	73,832	130,293
41 Arizona State University	4,440	3,078	2,576	2,579	707	62	172	3,499
42 University of Washington	4,286	3,573	3,147	3,442	159	819	511	2,797
43 Univ of Missouri Columbia	4,230	3,894	4,012	4,352	2,711	181	915	423
44 Georgia Institute of Tech	4,105	1,840	2,452	2,327	3,845	36	224	0
45 Texas Tech University	4,056	4,084	3,381	3,429	1,408	286	1,884	478
46 SUNY at Albany	3,966	3,038	2,959	3,769	8	1,693	885	1,380
47 University of Oklahoma	3,765	3,215	3,067	2,969	978	388	126	2,273
48 Florida A & M University	3,640	5,026	2,322	2,661I	310	302	1,095	1,933
49 Univ of Cal Irvine	3,556	3,128	2,824	2,727	0	1,429	530	1,597
50 University of Chicago	3,549	3,275	3,305	1,417	241	697	469	2,142
Total, 1st 50 insts.	455,795	394,966	350,119	315,880	143,216	85,121	80,643	146,815

See footnotes at end of table.

Table B-59. R&D expenditures in the social sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Social sciences total				1989 subfields			
	1989	1988	1987	1986	Eco-nomics	Political science	Soci-ology	Other
51 Univ of Massachusetts	3,441	2,996	2,963	2,995	47	27	812	2,555
52 University of Connecticut	3,199	2,894	2,419	2,068	136	52	355	2,656
53 Indiana University	3,075	2,754	1,856	1,411	1,092	545	364	1,074
54 Carnegie-Mellon Univ	3,074	2,554	3,009	2,915	1,084	678	1,312	0
55 Cleveland State Univ	3,072	3,160	2,734	1,658	0	20	597	2,455
56 US Naval Postgrad School	3,031	2,860	2,112	3,042	629	328	2,074	0
57 Univ of Cal Santa Barbara	2,942	2,972	3,401	3,513	1,030	12	421	1,479
58 Univ of Southern Cal	2,926	2,094	1,608	1,455	219	495	1,572	640
59 Mississippi State Univ	2,906	2,757	2,406	2,469	1,687	176	661	382
60 SUNY at Buffalo	2,849	786	487	583	4	109	86	2,650
Total, 1st 60 insts.	486,310	420,793	373,114	337,989	149,144	87,563	88,897	160,706
61 Yale University	2,801	2,955	3,375	2,991E	1,686	10	67	1,038
62 Univ of Hawaii-Manoa	2,764	2,427	2,358	2,037	735	39	128	1,862
63 Syracuse University	2,703	2,129	3,680	4,094	197	843	98	1,565
64 Stanford University	2,679	2,442	1,795	1,659	208	108	321	2,042
65 University of Virginia	2,660	2,487	2,342	1,853	270	2,069	275	46
66 Univ of Nebraska-Lincoln	2,651	1,291	1,764	2,346	2,063	71	303	214
67 Univ of Wis-Milwaukee	2,632	2,096	1,761	1,837	122	110	285	2,115
68 Univ. of Colorado	2,629	2,741	1,938	2,162	806	177	591	1,055
69 Case Western Reserve Univ	2,595	2,854	2,323	788E	1,017	0	73	1,505
70 SUNY at Stony Brook	2,594	2,075	1,775	1,892	536	1,309	120	629
Total, 1st 70 insts.	513,018	444,290	396,225	359,648	156,784	92,299	91,158	172,777
71 The University of Alabama	2,538	1,932	1,753	2,048	1,117	215	408	798
72 University of Iowa	2,404	1,930	2,300	1,276	328	141	561	1,374
73 N C State Univ at Raleigh	2,377	2,638	2,675	5,579	1,895	3	19	460
74 SUNY at Binghamton	2,322	2,176	1,879	1,515	359	665	540	758
75 Oregon State University	2,299	2,152	2,064	1,854I	1,409	0	528	362
76 Univ of Ill Chicago	2,292	2,062	2,018	1,748	100	17	36	2,139
77 Northern Illinois Univ	2,286	2,148	1,304E	1,343E	0	28	61	2,197
78 University of Florida	2,188	2,281	2,022	1,825	592	103	130	1,363
79 Tufts University	2,144	2,094	1,970	1,659I	77	1,807	210	50
80 Univ of Alaska Fairbanks	2,106	1,852E	2,350I	2,180I	107	30	1,418	551
Total, 1st 80 insts.	535,974	465,555	416,560	380,675	162,768	95,308	95,069	182,829
81 Univ of New Hampshire	2,084	938	783	813	0	222	0	1,862
82 Emory University	1,922	1,234	1,528	955	4	1,280	487	151
83 Univ of Cal San Diego	1,770	1,732	1,391	1,432	263	563	71	873
84 Univ of Ark Fayetteville	1,721	1,492	1,418	1,395	0	126	48	1,547
85 Brigham Young University	1,694I	1,378	1,526	1,309I	431	47I	338I	1,266I
86 Kans St U - Ag & App Sci	1,693	1,464	1,503	1,376	1,303	10	226	154
87 Desert Research Institute	1,643	1,372	807	659	0	0	1,643	0
88 Univ of Cal Davis	1,589	1,538	1,166	997	92	1,036	45	416
89 Illinois State University	1,573	1,637	1,475	1,055	1	15	0	1,557
90 University of Idaho	1,549	1,571	1,282	1,217	1,309	19	0	221
Total, 1st 90 insts.	553,212	479,911	429,439	391,883	165,783	98,626	97,927	190,876
91 University of Delaware	1,544	1,473	1,294	1,472	190	1	347	1,006
92 University of Miami	1,531	490	405	785	32	0	182	1,317
93 University of New Mexico	1,484	1,433	1,544	855	169	89	70	1,156
94 Southern Ill U-Carbondale	1,469	1,230	1,108	1,263	106	15	251	1,097
95 Boston University	1,460	957	457	618	497	0	0	963
96 San Diego State Univ	1,399	1,225	951	258	4	130	272	993
97 Howard University	1,381I	1,252I	1,140E	572I	17I	480I	0I	884I
98 Georgia State University	1,274	955	1,422	500	237	59	890	88
99 Utah State University	1,229	1,217	1,032	989	684	91	343	111
100 Northwestern University	1,227	930	1,004	1,061	438	185	133	471
Total, 1st 100 insts.	567,210	491,073	439,796	400,256	168,157	99,676	100,415	198,962
Total, all other sampled insts.	59,710	62,165	62,302	62,216	16,238	7,832	15,343	20,297
Estimated total non-sampled insts.	9,452	0	0	0	1,981	555	2,796	4,120

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-60. Federally financed R&D expenditures in the social sciences at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Social sciences total				1989 subfields			
	1989	1988	1987	1986	Economics	Political science	Sociology	Other
Total, all institutions	211,173	188,333	168,183	172,754	50,477	29,123	52,802	78,772
1 University of Michigan	15,829	13,050	13,835	14,757	4,141	5,986	1,423	4,279
2 Harvard University	14,527	12,956	10,302	7,422	3,325	7,632	334	3,236
3 Univ of Wis-Madison	9,899	11,476	9,097	7,846	3,137	50	2,617	4,095
4 Ohio State University	8,857	5,066	1,908	2,358	1,437	237	86	7,097
5 Johns Hopkins Univ	6,036	5,571	5,460	5,994	418	52	2,793	2,773
6 Univ of NC at Chapel Hill	5,794	4,945	3,965	2,931	70	0	1,985	3,739
7 Univ of Cal Berkeley	5,518	5,584	4,446	4,832	80	1,493	624	3,321
8 Duke University	4,531	3,778	1,406	1,226	2,126	537	1,809	59
9 Columbia Univ Main Div	4,134	1,512	1,720	2,196	242	36	3,779	77
10 Univ of Pennsylvania	4,052	4,688	4,821	4,427	1,105	158	1,517	1,272
Total, 1st 10 insts.	79,177	68,626	56,960	53,989	16,081	16,181	16,967	29,948
11 Brandeis University	3,859	3,685	3,472I	3,116I	18	70	3,771	0
12 Univ of Texas at Austin	3,467	1,712	1,343	1,698	895	787	1,196	589
13 Georgetown University	3,365	2,847	3,068	3,232	99	0	1,691	1,575
14 Rutgers the St Univ of NJ	3,334	3,408	3,500	2,381	90	1,553	566	1,125
15 US Naval Postgrad School	3,031	2,860	2,112	3,042	629	328	2,074	0
16 University of Minnesota	3,025	2,227	1,501	773	1,753	37	1,077	158
17 University of Washington	2,857	2,432	2,145	2,364	45	53	412	2,347
18 SUNY at Albany	2,782	2,005	1,676	2,230	0	1,059	596	1,127
19 Temple University	2,568	881	576	1,882	8	0	2,560	0
20 Univ of Cal Los Angeles	2,563	2,427	1,862	1,725	270	91	380	1,822
Total, 1st 20 insts.	110,028	93,110	78,215	76,432	19,888	20,159	31,290	38,691
21 Univ of Ill Urbana	2,414	2,169	2,491	2,214	941	296	67	1,110
22 Georgia Institute of Tech	2,304	932	1,288	1,289	2,158	20	126	0
23 Colorado State University	2,190	1,812	1,697	1,891	681	148	307	1,054
24 Texas A & M University	2,188	1,889	1,004	1,337	1,181	33	701	273
25 Pennsylvania State Univ	2,091	2,177	2,069	2,010	902	89	599	501
26 Cornell University	2,047	1,684	1,659	1,918	924	2	313	808
27 Michigan State University	2,027	2,134	2,262	2,620	1,922	8	13	84
28 Washington State Univ	1,994	1,803	338	2,656E	1,724	0	50	220
29 University of Arizona	1,830	1,730	2,082	2,201	799	46	0	985
30 Carnegie-Mellon Univ	1,754	1,711	1,861	1,935	795	512	447	0
Total, 1st 30 insts.	130,867	111,151	94,966	96,503	31,915	21,313	33,913	43,726
31 Univ of New Hampshire	1,742	601	455	634	0	72	0	1,670
32 University of Georgia	1,705	1,743	1,532	1,482	776	0	196	733
33 Iowa St U of Sci & Tech	1,693	409	739	983	830	3	833	27
34 Texas Tech University	1,659	2,520	2,046	2,057	332	16	1,262	49
35 Univ. of Colorado	1,513	1,899	1,364	1,607	365	57	444	647
36 Stanford University	1,485	1,254	1,319	1,364	92	1	232	1,160
37 Univ of MD College Park	1,479	1,355	1,240	1,197	155	101	275	948
38 Princeton University	1,472	1,880	1,809	1,989	233	1,157	82	0
39 Purdue University	1,465	1,477	1,393	1,440	1,002	0	422	41
40 Univ. Of Tennessee System	1,326	1,124	1,175	1,473	693	326	240	67
Total, 1st 40 insts.	146,406	125,413	108,038	110,729	36,393	23,046	37,899	49,068
41 Univ of Cal Irvine	1,321	1,217	1,429	1,333	0	511	74	736
42 Mass Inst of Technology	1,310	1,949	2,510	1,927	620	199	0	491
43 Clemson University	1,303	1,562	759	705	1,009	0	0	294
44 Univ of Cal Santa Barbara	1,279	1,255	1,361	1,701	359	0	128	792
45 Florida A & M University	1,268	1,850	1,097	2,594I	310	0	0	958
46 VA Polytech Inst & St U	1,225	1,889	1,557	1,129	376	66	95	688
47 Univ of Southern Cal	1,217	985	698	887	147	0	803	267
48 Desert Research Institute	1,210	930	533	403	0	0	1,210	0
49 University of Miami	1,208	367	189	304	32	0	177	999
50 University of Chicago	1,193	952	968	817	110	29	39	1,015
Total, 1st 50 insts.	158,940	138,369	119,139	122,529	39,356	23,851	40,425	55,308

See footnotes at end of table.

Table B-60. Federally financed R&D expenditures in the social sciences at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Social sciences total				1989 subfields			
	1989	1988	1987	1986	Economics	Political science	Sociology	Other
51 Univ of South Carolina	1,129	950	1,065	1,204	203	168	570	188
52 Tufts University	1,080	397	451	597I	75	814	191	0
53 Univ of Missouri Columbia	1,073	859	780	1,274	745	0	277	51
54 Northern Illinois Univ	1,053	755	580	498	0	20	61	972
55 Univ of Massachusetts	1,044	714	436	637	0	17	287	740
56 University of New Mexico	1,032	1,057	1,074	410	32	52	55	893
57 University of Pittsburgh	1,021	470	239	258	238	50	0	733
58 American University	979	1,023	521	357I	138	349	0	492
59 SUNY at Stony Brook	958	1,160	1,241	1,231E	369	504	24	61
60 Syracuse University	956	904	2,374	2,357	51	280	7	618
Total, 1st 60 insts.	169,265	146,658	127,900	131,352	41,207	26,105	41,897	60,056
61 Yale University	949	1,344	1,563	1,618E	711	0	23	215
62 U Tex Hlth Sci Ctr Houstn	948	915	964	728	0	0	948	0
63 SUNY at Buffalo	924	326	161	157	0	49	34	841
64 Indiana University	879	815	487	479	99	228	277	275
65 Fordham University	815	1,375	1,618	1,231I	0	0	815	0
66 San Diego State Univ	812	849	530	152	0	0	54	758
67 New York University	793	717	747	381	386	149	56	202
68 University of Iowa	791	640	944	454	164	23	210	394
69 Mississippi State Univ	770	753	666	618	412	0	209	149
70 Univ of Alaska Fairbanks	765	672E	643I	599I	0	23	432	310
Total, 1st 70 insts.	177,711	155,064	136,223	137,769	42,979	26,577	44,955	63,200
71 Kans St U - Ag & App Sci	717	559	540	393	614	3	84	16
72 Oregon State University	706	690	706	718I	262	0	242	202
73 Boston University	704	313	219	318	125	0	0	579
74 Portland State University	699	558	426	373I	0	0	0	699
75 Univ of Wis-Milwaukee	692	326	348	490	0	0	6	686
76 N C State Univ at Raleigh	655	774	846	1,528	501	1	0	153
77 Chas R Drew U of Med & Sc	617	0	269	179I	0	0	617	0
78 Case Western Reserve Univ	613	487	568	736	0	0	72	541
79 Univ of Nebraska-Lincoln	572	343	242	709	204	53	153	162
80 University of Kentucky	567	577	350	721	107	16	428	16
Total, 1st 80 insts.	184,253	159,691	140,737	143,934	44,792	26,650	46,557	66,254
81 University of Oregon	555	370	406	524	115	114	30	296
82 Howard University	544I	500I	453E	368E	0I	340I	0I	204I
83 Univ of Ill Chicago	522	671	510	567	59	10	5	448
84 Univ of Hawaii-Manoa	506	583	586	371	81	34	2	389
85 Northwestern University	493	524	595	490	308	0	53	132
86 University of Oklahoma	488	472	465	600	72	27	31	358
87 Arizona State University	487	468	318	725	18	0	2	467
88 Alabama A & M University	484	332	0	0I	0	0	0	484
89 University of Delaware	477	308	214	182	173	0	304	0
90 Loyola Univ - Chicago	475	89	76	103	0	0	470	5
Total, 1st 90 insts.	189,284	164,008	144,360	147,864	45,618	27,175	47,454	69,037
91 Cleveland State Univ	465	121	127	140	0	4	400	61
92 Univ of Cal San Diego	460	396	304	523	175	185	32	68
93 California Inst of Tech	444	368	318	365	0	0	0	444
94 University of Florida	443	514	464	389	0	0	12	431
95 The University of Alabama	424	197	122	343	4	0	1	419
96 Eastern Washington Univ	415I	298	228	478	0I	0I	0I	415I
97 University of Utah	398	469	336	429	0	0	1	397
98 University of Rochester	395	616	568	381	280	115	0	0
99 University of Connecticut	390	118	107	166	25	0	228	137
100 Southern Methodist Univ	378	583	576	438I	0	0	0	378
Total, 1st 100 insts.	193,496	167,688	147,510	151,516	46,102	27,479	48,128	71,787
Total, all other sampled insts.	15,325	20,645	20,673	21,238	4,117	1,621	4,116	5,471
Estimated total non-sampled insts.	2,352	0	0	0	258	23	558	1,514

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-61. Current fund expenditures for research equipment at universities and colleges, by science/engineering field and source of funds: fiscal years 1982 and 1988-89

[Dollars in thousands]

Field	Total			Federal			Non-Federal		
	1982	1988	1989	1982	1988	1989	1982	1988	1989
Total	421,400	921,099	997,878	270,433	577,412	594,194	150,967	343,687	403,683
Engineering, total	71,334	195,662	204,990	46,879	117,840	117,322	24,455	77,822	87,668
Aeronautical and astronautical	2,910	8,579	12,007	1,972	6,858	8,976	938	1,721	3,031
Chemical	6,574	14,981	18,612	3,836	8,013	9,460	2,738	6,968	9,152
Civil	5,659	17,281	16,082	2,721	10,585	9,009	2,938	6,696	7,073
Electrical	19,748	44,131	49,333	15,258	29,216	29,215	4,490	14,915	20,118
Mechanical	8,275	28,912	28,872	5,051	19,305	16,477	3,224	9,607	12,395
Other, n.e.c.	28,168	81,778	80,084	18,041	43,863	44,186	10,127	37,915	35,898
All sciences, total	350,066	725,437	792,888	223,554	459,572	476,872	126,512	265,865	316,016
Physical sciences	79,554	180,910	179,386	63,763	142,077	131,654	15,791	38,833	47,733
Astronomy	5,197	6,438	9,485	3,993	4,834	6,417	1,204	1,604	3,068
Chemistry	33,385	74,621	75,781	24,756	57,707	52,958	8,629	16,914	22,823
Physics	33,677	84,680	81,805	28,951	67,409	64,053	4,726	17,271	17,752
Other, n.e.c.	7,295	15,171	12,314	6,063	12,127	8,225	1,232	3,044	4,089
Environmental sciences	28,528	55,563	66,430	18,370	36,624	44,791	10,158	18,939	21,638
Atmospheric	4,586	9,744	12,015	3,307	7,632	7,852	1,279	2,112	4,163
Earth sciences	10,842	19,342	25,551	6,479	11,201	16,208	4,363	8,141	9,343
Oceanography	9,315	19,087	18,596	6,427	13,908	14,726	2,888	5,179	3,870
Other, n.e.c.	3,785	7,390	10,268	2,157	3,883	6,005	1,628	3,507	4,263
Mathematical sciences	3,568	9,601	10,555	2,559	7,516	6,946	1,009	2,085	3,609
Computer sciences	14,726	44,505	42,321	9,865	34,716	28,983	4,861	9,789	13,338
Life sciences	201,924	386,374	442,421	116,473	215,754	239,523	85,451	170,620	202,898
Agricultural sciences	41,192	53,689	62,497	12,097	17,201	19,862	29,095	36,488	42,635
Biological sciences	73,573	152,912	174,532	50,689	99,072	109,117	22,884	53,840	65,415
Medical sciences	80,828	162,194	183,645	49,794	90,656	98,619	31,034	71,538	85,026
Other, n.e.c.	6,331	17,579	21,746	3,893	8,825	11,925	2,438	8,754	9,821
Psychology	5,701	9,647	10,717	4,052	6,575	6,892	1,649	3,072	3,825
Social sciences	7,073	11,832	14,379	2,748	3,296	4,672	4,325	8,536	9,706
Economics	1,742	4,447	3,938	650	837	967	1,092	3,610	2,971
Political science	766	881	1,608	297	313	382	469	568	1,226
Sociology	1,820	2,227	3,030	720	883	1,100	1,100	1,344	1,930
Other, n.e.c.	2,745	4,277	5,802	1,081	1,263	2,223	1,664	3,014	3,579
Other sciences, n.e.c.	8,992	27,005	26,680	5,724	13,014	13,410	3,268	13,991	13,270

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-62. Current fund expenditures for research equipment at doctorate-granting institutions, by science/engineering field and source of funds: fiscal years 1982 and 1988-89

[Dollars in thousands]

Field	Total			Federal			Non-Federal		
	1982	1988	1989	1982	1988	1989	1982	1988	1989
Total	410,243	897,317	970,658	263,454	563,468	579,809	146,789	333,849	390,849
Engineering, total	70,018	189,947	198,575	46,125	115,203	114,309	23,893	74,744	84,266
Aeronautical and astronautical	2,873	8,147	11,637	1,940	6,444	8,606	933	1,703	3,031
Chemical	6,555	14,696	18,355	3,834	7,853	9,251	2,721	6,843	9,104
Civil	5,327	16,920	15,142	2,569	10,324	8,153	2,758	6,596	6,989
Electrical	19,302	42,517	47,191	14,908	28,657	28,936	4,394	13,860	18,255
Mechanical	8,155	27,941	28,185	4,982	18,591	16,050	3,173	9,350	12,135
Other, n.e.c.	27,806	79,726	78,065	17,892	43,334	43,313	9,914	36,392	34,752
All sciences, total	340,225	707,370	772,083	217,329	448,265	465,500	122,896	259,105	306,583
Physical sciences	77,136	175,855	174,920	62,177	139,480	129,191	14,959	36,375	45,729
Astronomy	5,160	6,403	9,484	3,966	4,808	6,416	1,194	1,595	3,068
Chemistry	31,708	71,569	72,978	23,591	56,159	51,567	8,117	15,410	21,411
Physics	33,065	82,781	80,248	28,596	66,411	63,045	4,469	16,370	17,203
Other, n.e.c.	7,203	15,102	12,210	6,024	12,102	8,163	1,179	3,000	4,047
Environmental sciences	27,579	54,383	64,908	17,850	36,152	43,706	9,729	18,231	21,202
Atmospheric	4,564	9,675	11,985	3,293	7,584	7,841	1,271	2,091	4,144
Earth sciences	10,403	18,689	24,960	6,186	11,012	15,779	4,217	7,677	9,181
Oceanography	9,103	19,016	18,029	6,363	13,890	14,262	2,740	5,126	3,767
Other, n.e.c.	3,509	7,003	9,934	2,008	3,666	5,824	1,501	3,337	4,110
Mathematical sciences	3,324	9,318	9,674	2,416	7,448	6,675	908	1,870	2,999
Computer sciences	13,724	43,284	41,664	9,688	34,157	28,808	4,036	9,127	12,856
Life sciences	198,228	377,625	430,656	113,518	208,917	232,625	84,710	168,708	198,031
Agricultural sciences	39,723	49,974	57,020	10,816	13,722	16,133	28,907	36,252	40,887
Biological sciences	71,668	148,540	169,106	49,201	96,179	106,434	22,467	52,361	62,672
Medical sciences	80,647	161,921	182,984	49,664	90,569	98,223	30,983	71,352	84,761
Other, n.e.c.	6,190	17,190	21,546	3,837	8,447	11,835	2,353	8,743	9,711
Psychology	5,234	9,089	10,314	3,713	6,260	6,657	1,521	2,829	3,657
Social sciences	6,279	11,239	13,392	2,393	3,109	4,483	3,886	8,130	8,909
Economics	1,577	4,164	3,811	571	736	948	1,006	3,428	2,863
Political science	709	797	1,584	270	303	376	439	494	1,208
Sociology	1,487	2,128	2,777	604	861	1,081	883	1,267	1,696
Other, n.e.c.	2,506	4,150	5,220	948	1,209	2,078	1,558	2,941	3,142
Other sciences, n.e.c.	8,721	26,577	26,555	5,574	12,742	13,355	3,147	13,835	13,200

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-63. Current fund expenditures for research equipment at universities and colleges, by science/engineering field, source of funds, and type of control: fiscal year 1989

[Dollars in thousands]

Field	Total			Federal			Non-Federal		
	Total	Public	Private	Total	Public	Private	Total	Public	Private
Total	997,878	663,001	334,877	594,194	352,273	241,921	403,683	310,728	92,955
Engineering, total	204,990	137,776	67,214	117,322	71,374	45,948	87,668	66,402	21,266
Aeronautical and astronautical	12,007	6,769	5,238	8,976	4,749	4,227	3,031	2,020	1,011
Chemical	18,612	12,333	6,279	9,460	5,417	4,043	9,152	6,916	2,236
Civil	16,082	12,501	3,582	9,009	6,627	2,382	7,073	5,873	1,200
Electrical	49,333	32,295	17,037	29,215	17,336	11,878	20,118	14,959	5,159
Mechanical	28,872	17,389	11,483	16,477	8,705	7,772	12,395	8,684	3,711
Other, n.e.c.	80,084	56,489	23,595	44,186	28,540	15,646	35,898	27,949	7,949
All sciences, total	792,888	525,225	267,663	476,872	280,899	195,973	316,016	244,326	71,689
Physical sciences	179,386	114,159	65,227	131,654	75,985	55,669	47,733	38,175	9,558
Astronomy	9,485	4,871	4,614	6,417	2,387	4,030	3,068	2,484	584
Chemistry	75,781	52,397	23,385	52,958	34,774	18,184	22,823	17,623	5,201
Physics	81,805	49,330	32,476	64,053	34,910	29,143	17,752	14,419	3,333
Other, n.e.c.	12,314	7,562	4,753	8,225	3,913	4,312	4,089	3,648	441
Environmental sciences	66,430	43,610	22,820	44,791	24,786	20,005	21,638	18,823	2,815
Atmospheric	12,015	10,089	1,926	7,852	6,123	1,729	4,163	3,966	197
Earth sciences	25,551	15,619	9,932	16,208	7,700	8,507	9,343	7,918	1,425
Oceanography	18,596	11,450	7,146	14,726	8,309	6,417	3,870	3,141	729
Other, n.e.c.	10,268	6,452	3,816	6,005	2,653	3,352	4,263	3,799	464
Mathematical sciences	10,555	6,844	3,711	6,946	3,773	3,173	3,609	3,071	537
Computer sciences	42,321	21,932	20,389	28,983	11,721	17,262	13,338	10,211	3,127
Life sciences	442,421	300,506	141,915	239,523	146,668	92,856	202,898	153,839	49,059
Agricultural sciences	62,497	60,141	2,356	19,862	19,197	665	42,635	40,944	1,691
Biological sciences	174,532	107,046	67,487	109,117	60,281	48,836	65,415	46,765	18,651
Medical sciences	183,645	117,640	66,005	98,619	59,512	39,107	85,026	58,128	26,898
Other, n.e.c.	21,746	15,679	6,067	11,925	7,677	4,248	9,821	8,002	1,819
Psychology	10,717	6,884	3,833	6,892	4,322	2,570	3,825	2,562	1,263
Social sciences	14,379	10,480	3,898	4,672	2,906	1,766	9,706	7,574	2,132
Economics	3,938	2,976	962	967	593	374	2,971	2,383	588
Political science	1,608	1,156	452	382	263	119	1,226	893	333
Sociology	3,030	2,327	703	1,100	729	371	1,930	1,597	332
Other, n.e.c.	5,802	4,021	1,781	2,223	1,321	902	3,579	2,700	879
Other sciences, n.e.c.	26,680	20,810	5,870	13,410	10,738	2,672	13,270	10,072	3,198

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-64. Total and federally financed current-fund expenditures for research equipment at universities and colleges: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	997,878	921,099	847,339	790,166	594,194	577,412	527,230	501,902
1 Univ of Wis-Madison	28,875	25,303	26,352	24,367	15,517	13,376	14,439	14,069
2 Johns Hopkins Univ	26,830	27,802	25,910	19,570	24,712	25,983	24,547	18,644
3 Cornell University	22,844	24,039	27,143	34,409	14,583	16,032	16,906	20,686
4 Univ of Ill Urbana	21,841	21,709	23,147	18,783	13,336	13,115	14,060	12,532
5 University of Washington	19,316	14,833	18,632	15,642	13,832	11,853	12,685	10,830
6 Stanford University	19,139	23,919	20,138	18,420E	16,755	21,791	18,705	16,363
7 Pennsylvania State Univ	18,400	11,301	9,348	9,464	11,384	5,795	4,559	4,970
8 Univ. Of Tennessee System	16,347	13,873	16,426	12,735	2,693	2,441	2,143	2,207
9 University of Minnesota	15,851	10,868	10,801	10,566	8,621	6,365	6,160E	6,012
10 University of Michigan	15,696	15,308	13,145E	11,553	10,709	9,464	7,689E	7,589
Total, 1st 10 insts.	205,139	188,955	191,042	175,509	132,142	126,215	121,893	113,902
11 Louisiana State Univ	14,114	9,411	5,954	5,227	6,015	2,687	2,641	1,897
12 Texas A & M University	14,023	12,120	14,912	13,977I	4,339	5,217	2,792	5,119I
13 Mass Inst of Technology	13,957	19,344	19,967	22,910	8,693	14,386	15,501	17,387
14 California Inst of Tech	13,371	11,147	12,732	11,294	11,557	9,757	11,270E	8,473
15 University of Arizona	12,300	11,229	10,707	9,361	7,092	7,118	6,167	6,273
16 Georgia Institute of Tech	11,977	8,152	6,317	7,714	6,723	4,864	3,314	4,274
17 Baylor Col of Medicine	11,511	7,053	5,055	3,903	5,924	4,493	2,668	2,623
18 Univ of Texas at Austin	11,454	10,158	17,720	15,339	7,875	7,422	14,674	10,882
19 University of Rochester	11,453	9,672	7,815	9,392	9,142	8,520	5,372	7,679
20 Harvard University	11,385	10,072	8,546	8,474	9,354	7,855	7,059	7,096
Total, 1st 20 insts.	330,684	297,313	300,767	283,100	208,856	198,534	193,351	185,605
21 Yale University	11,010	11,748	9,609	12,232	8,329	9,538	7,535	9,953
22 Columbia Univ Main Div	10,443	10,852	10,696	10,506	8,192	8,344	9,316	8,446
23 N C State Univ at Raleigh	10,364	9,858	4,351E	7,502	4,747	5,414	2,510	3,791
24 Univ of Southern Cal	9,879	10,556	12,177	12,939	8,346	8,925	11,165	11,733
25 University of Florida	9,753	7,044	9,094	7,521	5,022	2,862	5,216	4,656
26 Univ of MD College Park	9,648	8,959	9,435	7,861	3,576	4,276	5,261	5,504
27 Univ of Pennsylvania	9,436	7,511	8,231	10,569	6,671	5,360	6,368	8,565
28 Purdue University	9,112	9,505	7,765	7,308	6,211	7,059	5,748	5,242
29 University of Chicago	8,929	7,465	6,649	6,683	7,932	6,315	5,889E	5,758
30 University of Georgia	8,819	6,593E	6,593	7,434	2,931	2,776E	2,776	2,617
Total, 1st 30 insts.	428,077	387,404	385,367	373,655	270,813	259,403	255,135	251,870
31 University of Iowa	8,772	8,001	6,613	5,432	4,904	3,319	3,605	3,237
32 Univ of Cal San Diego	8,630	7,672	8,078	6,840	6,957	5,820	5,654	5,393
33 Duke University	8,451	7,148	5,144	4,694I	6,062	5,163	3,942	3,744I
34 Northwestern University	8,445	7,521	6,118	5,817	4,001	3,597	2,965	3,413
35 Univ. of Colorado	8,079	7,802	6,178	6,640	6,614	6,214	5,086	5,692
36 Woods Hole Ocngrphic Inst	8,067	5,800	3,121	2,895	7,714	4,200	2,821	2,653
37 Carnegie-Mellon Univ	8,027	10,006	11,979	9,010	5,953	7,930	9,608	5,237
38 Univ of Cal Los Angeles	7,995	6,589	8,373	6,790	5,240	4,147	5,693	4,998
39 Univ of NC at Chapel Hill	7,901	7,062	5,762	6,408	4,774	4,402	3,417	3,832
40 Rutgers the St Univ of NJ	7,850	9,583	8,575	4,728	1,642	1,437	1,560	831
Total, 1st 40 insts.	510,294	464,588	455,308	432,909	324,674	305,632	299,486	290,900
41 Univ of Cal San Francisco	7,677	6,376	6,675	4,687	5,107	3,776	4,192	2,843
42 Washington University	7,523	6,883	5,302	5,250	5,614	5,199	4,136	3,996
43 Wayne State University	7,161	5,831	4,018	4,701	2,004	1,731	1,061	1,372
44 Univ of Cal Berkeley	7,077	7,167	5,964	5,235	5,721	6,094	4,695	4,077
45 Univ of Massachusetts	6,976	8,008	5,841	5,994	3,931	4,821	3,651	3,518
46 Ohio State University	6,693	9,199	7,035	5,496	3,064	3,695	2,552	2,689
47 Univ of Ill Chicago	6,287	6,126	5,171	4,827	2,973	3,238	2,473	2,484
48 SUNY at Buffalo	6,225	3,948	3,365	3,562	3,324	3,038	2,661	3,303
49 Michigan State University	6,205	6,685	5,930	6,005	4,570	4,926	4,474	4,745
50 Indiana University	6,115	6,364	5,956	5,095	4,908	5,279	4,674	4,114
Total, 1st 50 insts.	578,233	531,175	510,565	483,761	365,890	347,429	334,055	324,041

See footnotes at end of table.

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Table B-64. Total and federally financed current-fund expenditures for research equipment at universities and colleges: fiscal years 1986-89--Continued

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
51 Princeton University	6,040	7,036	7,585	4,717	5,110	5,435	6,347	4,252
52 Univ of MD Balt Prof Sch	6,022	4,994	4,278I	3,565I	1,722	1,754	2,326I	2,098I
53 University of Connecticut	5,830	4,289	4,167	3,565	3,006	2,708	2,441	1,832
54 VA Polytech Inst & St U	5,727	3,865	3,977	4,157	2,088	1,549	1,692	1,514
55 Colorado State University	5,724	5,804	2,971	3,043	4,896	5,177	2,615	2,791
56 University of Utah	5,489	5,838	5,073	5,013	3,746	4,518	3,877	4,517
57 University of Virginia	5,487	5,648	3,758	3,864	3,995	4,649	2,555	2,442
58 Univ Alabama Birmingham	5,474	5,569	5,164	3,785	3,275	2,968	3,217	2,439
59 Univ of Cal Davis	5,465	4,662	3,626	2,997	3,268	2,860	2,031	1,427
60 SUNY at Stony Brook	5,426	5,733	3,764	3,630	4,427	4,952	3,151	2,818
Total, 1st 60 insts.	634,917	584,613	554,928	522,097	401,423	383,999	364,307	350,171
61 Emory University	5,257	5,409	3,953	3,984	3,251	4,271	2,744	3,003
62 Arizona State University	5,240	4,487	5,445	3,102	3,057	1,876	2,161	1,365
63 Univ of South Florida	5,[illegible]5	1,106	1,001	1,204	2,847	757	602	886
64 University of Pittsburgh	5,202	5,377	5,081	4,971	3,947	3,918	3,987	3,875
65 UT SW Medical Ctr-Dallas	5,153	3,961	4,614	3,199	1,893	1,873	2,709	1,661
66 Univ of Nebraska-Lincoln	5,114	3,316	2,734	3,358	1,082	1,409	1,400	1,861
67 Clemson University	4,962	3,172	3,267	2,884	741	811	1,046	303
68 Vanderbilt University	4,855	4,522	3,302	3,067I	4,526	2,957	2,160	2,218I
69 University of Miami	4,842	5,517	4,787	3,632	3,263	3,790	2,985	2,426
70 Univ of Missouri Columbia	4,786	5,763	3,368	4,267	1,341	831	762	1,161
Total, 1st 70 insts.	685,533	627,243	592,480	555,765	427,371	406,492	384,863	368,930
71 Florida State University	4,782	3,065	3,148	3,240	1,893	1,890	1,557	2,227
72 University of New Mexico	4,728	3,840	4,522	5,013	2,837	2,040	2,633	2,273
73 Yeshiva University	4,569	3,905	1,683	1,603	1,817	2,475	1,575	1,500
74 U of Houston	4,528	3,154	1,564	1,448	2,444	1,864	1,152	1,143
75 University of Cincinnati	4,433	3,414	3,045	2,832	2,668	1,913	2,635	1,545
76 Auburn University	4,333	5,976	4,640	5,003	1,214	2,265	1,724	1,262
77 Univ of Med & Dent of N J	4,331	3,612	2,517	3,278	2,170	1,700	863	952
78 University of Oklahoma	4,207	4,664	4,215	1,827	1,361	1,478	1,951	1,218
79 Oregon State University	4,159	3,900	2,491	3,483I	2,808	2,733	1,962	1,841I
80 Case Western Reserve Univ	4,134I	4,137	4,546	3,271I	3,293I	3,297	1,865	2,674I
Total, 1st 80 insts.	729,737	666,910	624,851	586,763	449,876	428,147	402,780	385,565
81 Iowa St U of Sci & Tech	4,092	4,468	3,965	2,239	2,091	2,790	2,450	1,333
82 Texas Tech University	4,059	2,415	2,675	2,349	1,164	865	1,101	999
83 University of Notre Dame	4,022	3,587	1,943	1,813	2,097	2,857	1,143	1,241
84 Univ of Hawaii-Manoa	3,945	2,315	1,558	1,139	1,455	1,061	950	734
85 Oklahoma State University	3,877	4,595	2,365	1,997	1,519	2,197	998	522
86 Mississippi State Univ	3,861	2,737	1,908	2,180	1,282	492	427	569
87 Rockefeller University	3,820	3,332	3,469	3,602	1,758	1,533	1,596	1,917
88 Kans St U - Ag & App Sci	3,791	3,724	3,314	5,254	1,666	1,797	1,828	3,142
89 US Naval Postgrad School	3,776	4,638	2,047	1,300	3,750	4,638	2,026	1,300
90 Rensselaer Polytech Inst	3,717	4,068	2,905	2,071I	2,061	1,829	1,640	1,268I
Total, 1st 90 insts.	768,697	702,789	651,000	610,707	468,719	448,206	416,939	398,590
91 University of Delaware	3,612	2,958	3,738	2,885	1,855	1,142	1,700	1,191
92 New York University	3,485	3,689	5,471	5,530	2,842	3,051	3,489	3,263
93 Tulane University	3,480	5,491	6,649	2,400	850	2,215	3,645E	1,688
94 Univ of Cal Irvine	3,396	2,684	2,361	3,135	2,539	2,285	1,877	2,599
95 Univ of South Carolina	3,350	4,674	3,151	2,854	1,322	1,541	1,114	1,089
96 West Virginia University	3,313	2,344	1,472	2,142	1,075	1,234	632	1,437
97 UT MD Anderson Cancer Ctr	3,190	3,879	2,588	3,482	1,107	1,499	591	564
98 Wake Forest University	3,172	2,938	1,780	1,494I	1,966	1,591	1,248	1,190I
99 Syracuse University	3,149	5,994	3,536	761	1,648	5,619	2,092	360
100 SUNY Hlth Sci Ctr - Syrcs	3,085	1,933	1,271	686	679	643	542	322
Total, 1st 100 insts.	801,929	739,373	683,017	636,076	484,602	469,026	433,869	412,293
Total, all other sampled insts.	182,809	181,726	164,322	154,090	104,405	108,386	93,361	89,609
Estimated total non-sampled insts.	13,140	0	0	0	5,187	0	0	0

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-65. Capital expenditures at universities and colleges, by science/engineering field and source of funds: fiscal years 1982-89 1/

[Dollars in thousands]

Field and source	1982	1983	1984	1985	1986	1987	1988	1989
Total	964,596	1,091,753	1,174,646	1,222,698	1,493,503	1,737,118	1,954,626	2,091,698
Engineering	146,996	136,835	146,884	183,598	314,149	379,785	365,315	371,825
All sciences, total	817,600	954,918	1,027,762	1,039,100	1,179,354	1,357,333	1,589,311	1,719,873
Physical sciences	83,296	97,864	110,134	115,653	143,667	156,849	204,919	237,669
Environmental sciences	44,006	42,174	36,218	54,574	48,945	54,063	58,676	72,672
Mathematical/computer sciences	35,651	54,206	48,921	77,209	90,603	82,651	95,412	67,518
Life sciences	578,398	667,367	716,602	691,149	768,281	908,977	1,050,025	1,161,851
Psychology	12,956	16,705	31,317	12,807	17,816	9,669	12,130	13,893
Social sciences	31,344	40,898	46,941	60,720	49,919	55,207	80,709	77,483
Other sciences, n.e.c.	31,949	35,704	37,629	26,988	60,123	89,917	87,440	88,787
Federal sources, total	126,448	135,101	142,440	106,801	170,509	193,246	202,034	205,769
Engineering	20,931	18,390	30,640	16,793	37,536	49,344	47,010	43,340
All sciences, total	105,517	116,711	111,800	90,008	132,973	143,902	155,024	162,429
Physical sciences	21,966	19,482	20,713	31,497	38,108	40,130	33,140	40,250
Environmental sciences	6,006	4,639	4,828	4,128	8,168	15,199	13,455	18,985
Mathematical/computer sciences	5,049	5,516	8,697	8,918	17,516	12,228	19,529	7,336
Life sciences	67,319	79,357	72,685	40,315	57,823	57,954	71,203	77,030
Psychology	1,205	1,082	1,035	871	1,739	989	2,184	1,654
Social sciences	2,213	5,277	3,209	2,493	3,618	4,834	7,985	8,178
Other sciences, n.e.c.	1,759	1,358	633	1,786	6,001	12,568	7,528	8,997
Other sources, total	838,148	956,652	1,032,206	1,115,897	1,322,994	1,543,872	1,752,592	1,885,929
Engineering	126,065	118,445	116,244	166,805	276,613	330,441	318,305	328,485
All sciences, total	712,083	838,207	915,962	949,092	1,046,381	1,213,431	1,434,287	1,557,444
Physical sciences	61,330	78,382	89,421	84,156	105,559	116,719	171,779	197,419
Environmental sciences	38,000	37,535	31,390	50,446	40,777	38,864	45,221	53,688
Mathematical/computer sciences	30,602	48,690	40,224	68,291	73,087	70,423	75,883	60,182
Life sciences	511,079	588,010	643,917	650,834	710,458	851,023	978,822	1,084,821
Psychology	11,751	15,623	30,282	11,936	16,077	8,680	9,946	12,239
Social sciences	29,131	35,621	43,732	58,227	46,301	50,373	72,724	69,305
Other sciences, n.e.c.	30,190	34,346	36,996	25,202	54,122	77,349	79,912	79,790

1/ Includes expenditures for facilities and equipment for research, development, and instruction.

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-66. Capital expenditures at public universities and colleges, by science/engineering field and source of funds: fiscal years 1982-89 1/

[Dollars in thousands]

Field and source	1982	1983	1984	1985	1986	1987	1988	1989
Total	663,950	711,566	746,087	845,628	1,049,456	1,204,554	1,355,067	1,384,956
Engineering	116,572	96,888	92,732	129,075	243,278	288,109	291,778	252,313
All sciences, total	547,378	614,678	653,355	716,553	806,178	916,445	1,063,289	1,132,643
Physical sciences	46,578	53,346	53,079	63,685	82,574	73,574	127,967	160,383
Environmental sciences	30,171	32,608	29,419	44,590	33,793	33,593	45,937	53,817
Mathematical/computer sciences	19,857	36,220	26,107	47,197	48,520	40,489	42,021	36,706
Life sciences	406,683	445,423	477,298	497,643	563,024	669,747	738,023	764,067
Psychology	5,448	7,113	20,857	9,256	7,302	3,258	4,803	5,917
Social sciences	9,477	13,789	19,816	30,798	20,173	22,585	29,574	37,335
Other sciences, n.e.c.	29,164	26,179	26,779	23,384	50,792	73,199	74,964	74,418
Federal sources, total	50,468	46,395	38,472	44,886	69,787	79,303	82,084	106,510
Engineering	8,732	5,995	6,377	5,178	16,177	27,384	19,528	24,074
All sciences, total	41,736	40,400	32,095	39,708	53,610	51,919	62,556	82,436
Physical sciences	11,802	12,208	9,909	9,827	15,411	16,206	20,414	28,982
Environmental sciences	2,954	2,245	1,876	1,764	4,852	11,060	8,063	15,491
Mathematical/computer sciences	1,220	883	581	1,165	3,947	3,043	1,078	1,141
Life sciences	22,762	22,114	17,798	25,285	26,947	19,720	25,759	26,847
Psychology	602	635	684	587	906	506	1,456	695
Social sciences	920	1,117	664	231	558	459	3,281	3,445
Other sciences, n.e.c.	1,476	1,198	583	849	989	925	2,505	5,835
Other sources, total	613,482	665,171	707,615	800,742	979,669	1,125,251	1,272,983	1,278,446
Engineering	107,840	90,893	86,355	123,897	227,101	260,725	272,250	228,239
All sciences, total	505,642	574,278	621,260	676,845	752,568	864,526	1,000,733	1,050,208
Physical sciences	34,776	41,138	43,170	53,858	67,163	57,368	107,553	131,401
Environmental sciences	27,217	30,363	27,543	42,826	28,941	22,533	37,874	38,327
Mathematical/computer sciences	18,637	35,337	25,526	46,032	44,573	37,446	40,943	35,565
Life sciences	383,921	423,309	459,500	472,358	536,077	650,027	712,264	737,220
Psychology	4,846	6,478	20,173	8,669	6,396	2,752	3,347	5,222
Social sciences	8,557	12,672	19,152	30,567	19,615	22,126	26,293	33,890
Other sciences, n.e.c.	27,688	24,981	26,196	22,535	49,803	72,274	72,459	68,583

1/ Includes expenditures for facilities and equipment for research, development, and instruction.

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-67. Capital expenditures at private universities and colleges, by science/engineering field and source of funds: fiscal years 1982-89 1/

[Dollars in thousands]

Field and source	1982	1983	1984	1985	1986	1987	1988	1989
Total	300,646	380,187	428,559	377,070	444,047	532,564	599,559	706,742
Engineering	30,424	39,947	54,152	54,523	70,871	91,676	73,537	119,512
All sciences, total	270,222	340,240	374,407	322,547	373,176	440,888	526,022	587,230
Physical sciences	36,718	44,518	57,055	51,968	61,093	83,275	76,952	77,286
Environmental sciences	13,835	9,566	6,799	9,984	15,152	20,470	12,739	18,855
Mathematical/computer sciences	15,794	17,986	22,814	30,012	42,083	42,162	53,391	30,812
Life sciences	171,715	221,944	239,304	193,506	205,257	239,230	312,002	397,785
Psychology	7,508	9,592	10,460	3,551	10,514	6,411	7,327	7,977
Social sciences	21,867	27,109	27,125	29,922	29,746	32,622	51,135	40,148
Other sciences, n.e.c.	2,785	9,525	10,850	3,604	9,331	16,718	12,476	14,368
Federal sources, total	75,980	88,706	103,968	61,915	100,722	113,943	119,950	99,259
Engineering	12,199	12,395	24,263	11,615	21,359	21,960	27,482	19,266
All sciences, total	63,781	76,311	79,705	50,300	79,363	91,983	92,468	79,993
Physical sciences	10,164	7,274	10,804	21,670	22,697	23,924	12,726	11,267
Environmental sciences	3,052	2,394	2,952	2,364	3,316	4,139	5,392	3,494
Mathematical/computer sciences	3,829	4,633	8,116	7,753	13,569	9,185	18,451	6,194
Life sciences	44,557	57,243	54,887	15,030	30,876	38,234	45,444	50,184
Psychology	603	447	351	284	833	483	728	959
Social sciences	1,293	4,160	2,545	2,262	3,060	4,375	4,704	4,733
Other sciences, n.e.c.	283	160	50	937	5,012	11,643	5,023	3,162
Other sources, total	224,666	291,481	324,591	315,155	343,325	418,621	479,609	607,483
Engineering	18,225	27,552	29,889	42,908	49,512	69,716	46,055	100,246
All sciences, total	206,441	263,929	294,702	272,247	293,813	348,905	433,554	507,237
Physical sciences	26,554	37,244	46,251	30,298	38,396	59,351	64,226	66,018
Environmental sciences	10,783	7,172	3,847	7,620	11,836	16,331	7,347	15,361
Mathematical/computer sciences	11,965	13,353	14,698	22,259	28,514	32,977	34,940	24,617
Life sciences	127,158	164,701	184,417	178,476	174,381	200,996	266,558	347,601
Psychology	6,905	9,145	10,109	3,267	9,681	5,928	6,599	7,018
Social sciences	20,574	22,949	24,580	27,660	26,686	28,247	46,431	35,415
Other sciences, n.e.c.	2,502	9,365	10,800	2,667	4,319	5,075	7,453	11,206

1/ Includes expenditures for facilities and equipment for research, development, and instruction.

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-68. Capital expenditures at doctorate-granting institutions, by geographic division, State, and science/engineering field: fiscal year 1989 1/

[Dollars in thousands]

Division and State	Total	Engineering	Physical sciences	Environmental sciences	Math & computer sciences	Life sciences	Psychology	Social sciences	Other sciences
Total	2,009,111	360,107	226,952	67,113	59,648	1,128,886	12,510	74,447	79,448
New England	131,008	18,346	20,455	5,609	2,181	76,563	900	1,681	5,273
Connecticut	49,213	2,833	2,228	189	819	40,327	523	422	1,872
Maine	3,000	0	1,636	1,364	0	0	0	0	0
Massachusetts	34,196	1,101	9,466	3,923	948	13,934	185	1,239	3,400
New Hampshire	30,271	13,243	6,206	96	0	10,540	185	0	1
Rhode Island	11,736	719	87	37	414	10,452	7	20	0
Vermont	2,592	450	832	0	0	1,310	0	0	0
Middle Atlantic	332,704	87,443	17,705	1,926	23,468	180,495	5,005	8,447	8,215
New Jersey	105,187	16,849	7,002	269	9,854	64,566	443	6,204	0
New York	125,751	40,800	7,849	326	3,761	65,301	890	677	6,147
Pennsylvania	101,766	29,794	2,854	1,331	9,853	50,628	3,672	1,566	2,068
East North Central	323,170	44,890	47,795	11,916	9,510	187,551	3,016	4,398	14,094
Illinois	62,450	5,897	3,356	1,219	810	48,160	623	550	1,835
Indiana	53,103	9,520	13,271	4,497	5,500	13,527	1,605	1,471	3,712
Michigan	114,630	22,521	18,678	54	1,038	71,305	36	204	794
Ohio	50,217	4,174	11,617	5,587	624	27,012	244	753	206
Wisconsin	42,770	2,778	873	559	1,538	27,547	508	1,420	7,547
West North Central	162,587	26,585	17,560	7,118	6,053	98,821	298	610	5,542
Iowa	55,415	4,894	11,090	0	4,966	34,199	6	19	241
Kansas	12,859	2,470	1,051	94	341	3,518	99	423	4,863
Minnesota	30,527	11,947	747	588	123	17,066	0	56	0
Missouri	39,902	7,059	4,288	237	602	27,587	29	100	0
Nebraska	14,954	0	0	0	0	14,684	154	0	116
North Dakota	8,740	215	384	6,199	21	1,577	10	12	322
South Dakota	190	0	0	0	0	190	0	0	0
South Atlantic	273,603	40,148	27,035	12,120	5,594	152,116	1,273	32,974	2,343
Delaware	5,035	427	20	3,165	0	1,415	0	8	0
District of Columbia	29,255	582	92	14	165	3,049	22	25,169	162
Florida	38,722	10,685	4,196	387	564	19,687	323	1,683	1,197
Georgia	6,085	1,391	270	12	985	3,335	9	37	46
Maryland	81,770	7,670	8,947	8,129	3,142	50,822	563	2,409	88
North Carolina	67,383	17,013	12,577	317	644	36,340	188	291	13
South Carolina	26,960	3	324	0	1	23,307	125	3,101	99
Virginia	15,919	1,400	467	74	21	13,341	0	54	562
West Virginia	2,474	977	142	22	72	820	43	222	176
East South Central	153,744	11,626	23,335	4,919	3,959	108,134	66	1,061	644
Alabama	55,155	1,058	10,181	4,846	899	38,132	5	3	31
Kentucky	42,007	8,187	1,029	0	2,533	28,956	0	980	322
Mississippi	17,053	720	10,077	0	8	6,248	0	0	0
Tennessee	39,529	1,661	2,048	73	519	34,798	61	78	291
West South Central	110,850	20,251	7,505	4,902	2,634	64,188	151	3,815	7,404
Arkansas	8,220	445	33	0	0	7,733	0	9	0
Louisiana	10,181	386	808	284	145	7,731	33	139	655
Oklahoma	13,214	5,197	214	3,663	155	428	29	38	3,490
Texas	79,235	14,223	6,450	955	2,334	48,296	89	3,629	3,259
Mountain	38,406	16,212	3,684	3,602	1,706	11,308	179	878	837
Arizona	10,167	2,865	1,381	306	516	3,890	51	649	509
Colorado	6,252	1,900	1,575	494	80	1,902	111	190	0
Idaho	482	184	0	36	0	262	0	0	0
Montana	-	-	-	-	-	-	-	-	-
Nevada	1,054	199	0	678	0	33	0	0	144
New Mexico	8,070	4,329	500	788	1,047	1,166	17	39	184
Utah	12,340	6,716	224	1,300	63	4,037	0	0	0
Wyoming	41	19	4	0	0	18	0	0	0
Pacific	480,971	94,569	61,731	15,001	4,499	247,874	1,622	20,583	35,092
Alaska	216	44	0	14	0	0	158	0	0
California	390,330	88,275	39,237	8,745	2,405	205,072	1,257	17,394	27,945
Hawaii	12,328	2,242	8,557	1,237	0	291	0	1	0
Oregon	39,215	884	8,733	4,642	1,738	23,041	0	30	147
Washington	38,882	3,124	5,204	363	356	19,470	207	3,158	7,000
Outlying Areas	2,068	37	147	0	44	1,836	0	0	4

1/ Includes expenditures for facilities and equipment for research, development, and instruction.

- Data not available.
SOURCE: National Science Foundation, SRS

Table B-69. R&D expenditures at university-administered federally funded research and development centers, by character of work: fiscal years 1953-89

[Dollars in millions]

Fiscal year	Total	Character of work			
		Basic research		Applied research and development	
		Amount	Percent of total	Amount	Percent of total
1953	121	33	27.3%	88	72.7%
1954	141	39	27.7	102	72.3
1955	180	49	27.2	131	72.8
1956	194	51	26.3	143	73.7
1957	240	65	27.1	175	72.9
1958	293	78	26.6	215	73.4
1959	338	92	27.2	246	72.8
1960	360	97	26.9	263	73.1
1961	410	115	28.0	295	72.0
1962	470	136	28.9	334	71.1
1963	530	159	30.0	371	70.0
1964	629	191	30.4	438	69.6
1965	629	208	33.1	421	66.9
1966	630	227	36.0	403	64.0
1967	673	250	37.1	423	62.9
1968	719	276	38.4	443	61.6
1969	725	275	37.9	450	62.1
1970	737	269	36.5	468	63.5
1971	716	260	36.3	456	63.7
1972	753	244	32.4	509	67.6
1973	817	296	36.2	521	63.8
1974	865	390	45.1	475	54.9
1975	987	439	44.5	548	55.5
1976	1,147	512	44.6	635	55.4
1977	1,384	600	43.4	784	56.6
1978 1/............	1,717	-	-	-	-
1979	1,935	1,015	52.5	919	47.5
1980	2,246	1,124	50.0	1,122	50.0
1981	2,486	1,261	50.7	1,225	49.3
1982	2,479	1,317	53.1	1,161	46.8
1983	2,737	1,472	53.8	1,264	46.2
1984	3,150	1,675	53.2	1,475	46.8
1985	3,523	1,749	49.6	1,774	50.4
1986	3,895	1,859	47.7	2,036	52.3
1987	4,206	2,012	47.8	2,194	52.2
1988	4,531	2,222	49.0	2,308	50.9
1989	4,729	2,329	49.2	2,399	50.7

1/ Data were not collected in 1978.

SOURCE: National Science Foundation, SRS

Table B-70. R&D expenditures at university-administered federally funded research and development centers, by science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Field	1982	1983	1984	1985	1986	1987	1988	1989
Total	2,478,721	2,736,652	3,150,380	3,523,092	3,894,806	4,206,084	4,530,562	4,728,642
Field								
Engineering, total	636,158	944,952	1,097,444	1,296,043	1,445,252	1,547,061	1,647,378	1,681,437
Aeronautical and astronautical	59,409	69,057	86,022	107,065	126,566	132,238	146,894	145,035
Chemical	44,988	45,832	39,230	40,082	40,048	41,884	43,964	40,162
Civil	17,952	13,378	13,596	15,597	16,014	17,568	17,500	16,439
Electrical	171,470	316,652	390,967	454,233	514,263	550,430	572,181	589,790
Mechanical	181,017	339,573	396,962	489,469	540,103	570,698	602,857	628,057
Other, n.e.c.	161,322	160,460	170,667	189,597	208,258	234,243	263,982	261,954
All sciences, total	1,842,563	1,791,700	2,052,936	2,227,049	2,449,554	2,659,023	2,883,184	3,047,205
Physical sciences	1,311,721	1,192,067	1,369,108	1,448,808	1,540,627	1,660,404	1,756,353	1,868,667
Astronomy	61,980	69,108	77,683	73,330	79,047	82,360	85,609	88,859
Chemistry	161,548	200,505	221,002	226,440	246,911	261,267	274,647	274,359
Physics	982,245	885,500	1,023,210	1,097,949	1,159,738	1,257,808	1,334,837	1,442,002
Other, n.e.c.	105,948	36,954	47,213	51,089	54,931	58,969	61,260	63,447
Environmental sciences	161,867	159,032	175,152	200,074	232,606	257,800	289,352	298,529
Atmospheric	59,230	61,139	66,604	83,498	99,017	103,504	115,564	122,228
Earth sciences	37,334	37,795	42,913	46,552	50,361	55,947	57,169	42,115
Oceanography	12,201	13,068	15,196	16,056	19,489	22,361	24,785	25,013
Other, n.e.c.	53,102	47,030	50,439	53,968	63,739	75,988	91,834	109,173
Mathematical sciences	42,091	65,340	81,376	92,858	109,102	121,793	126,084	162,247
Computer sciences	177,106	224,274	266,268	338,116	427,297	472,766	549,444	554,548
Life sciences	84,269	104,484	106,313	110,905	107,506	115,416	123,508	130,556
Agricultural sciences	2,528	1,008	639	633	663	684	1,397	1,175
Biological sciences	62,180	76,437	80,730	82,057	85,195	87,202	91,712	101,287
Medical sciences	8,575	9,555	11,093	10,729	8,572	10,570	12,996	10,114
Other, n.e.c.	10,986	17,484	13,851	17,486	13,076	16,960	17,403	17,980
Psychology	155	194	240	264	294	899	973	947
Social sciences	21,412	21,067	18,056	17,591	19,343	21,421	27,868	23,291
Economics	4,556	4,254	3,590	4,401	4,043	2,554	1,477	491
Political science	3,428	3,955	3,319	4,038	4,994	4,563	5,843	3,858
Sociology	2,487	0	0	0	0	0	0	0
Other, n.e.c.	10,941	12,858	11,147	9,152	10,306	14,304	20,548	18,942
Other sciences, n.e.c.	43,942	25,242	36,423	18,433	12,779	8,524	9,602	8,420

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-71. Federally financed R&D expenditures at university-administered federally funded research and development centers, by science/engineering field: fiscal years 1982-89

[Dollars in thousands]

Field	1982	1983	1984	1985	1986	1987	1988	1989
Total	2,438,680	2,697,078	3,106,166	3,476,699	3,862,913	4,174,718	4,498,909	4,691,232
Field								
Engineering, total	621,527	932,483	1,084,877	1,284,767	1,435,137	1,539,481	1,640,550	1,672,223
Aeronautical and astronautical	59,285	68,958	85,892	106,959	126,481	132,169	146,813	144,910
Chemical	44,184	45,197	38,649	39,463	39,364	41,378	43,427	39,534
Civil	17,116	13,112	13,370	15,369	15,815	17,415	17,335	16,238
Electrical	167,753	313,091	386,868	450,988	511,852	548,560	570,685	587,509
Mechanical	175,136	333,976	391,728	485,027	536,435	567,922	600,584	624,909
Other, n.e.c.	158,053	158,149	168,370	186,961	205,190	232,037	261,706	259,123
All sciences, total	1,817,153	1,764,595	2,021,289	2,191,932	2,427,776	2,635,237	2,858,359	3,019,009
Physical sciences	1,300,438	1,177,622	1,354,583	1,433,957	1,529,586	1,649,404	1,746,389	1,853,469
Astronomy	61,748	68,875	75,756	71,401	77,127	80,418	83,552	87,090
Chemistry	158,488	196,988	218,232	223,816	244,779	259,457	272,970	271,891
Physics	974,755	875,316	1,014,218	1,088,499	1,153,577	1,251,388	1,329,489	1,432,518
Other, n.e.c.	105,447	36,443	46,377	50,241	54,103	58,141	60,378	61,970
Environmental sciences	152,118	151,638	167,137	188,653	229,989	254,889	286,106	294,192
Atmospheric	52,443	55,459	60,218	73,684	98,069	102,269	114,115	120,259
Earth sciences	35,785	37,039	42,126	45,883	49,815	55,453	56,699	41,841
Oceanography	12,201	13,068	15,196	16,056	19,489	22,361	24,785	25,013
Other, n.e.c.	51,689	46,072	49,597	53,030	62,616	74,806	90,507	107,079
Mathematical sciences	41,064	64,174	80,092	91,770	108,196	121,075	125,434	160,792
Computer sciences	176,775	223,227	265,041	337,117	426,508	472,142	548,872	554,098
Life sciences	82,503	102,468	104,582	108,862	105,540	111,233	117,451	126,607
Agricultural sciences	2,524	1,008	639	633	663	684	1,397	1,175
Biological sciences	60,815	74,924	79,327	80,430	83,955	85,767	90,372	97,639
Medical sciences	8,503	9,471	11,023	10,583	8,006	7,973	8,451	10,061
Other, n.e.c.	10,661	17,065	13,593	17,216	12,916	16,809	17,231	17,732
Psychology	155	194	240	264	294	899	973	947
Social sciences	20,483	20,196	17,018	16,751	18,661	20,890	27,551	22,942
Economics	4,124	3,786	2,836	3,773	3,563	2,195	1,441	491
Political science	3,350	3,880	3,268	3,979	4,930	4,523	5,781	3,799
Sociology	2,409	0	0	0	0	0	0	0
Other, n.e.c.	10,600	12,530	10,914	8,999	10,168	14,172	20,329	18,652
Other sciences, n.e.c.	43,617	25,076	32,596	14,558	9,002	4,705	5,583	5,962

NOTE: n.e.c. = not elsewhere classified.

SOURCE: National Science Foundation, SRS

Table B-72. R&D expenditures at university-administered federally funded research and development centers, by science/engineering field: fiscal year 1989

[Dollars in thousands]

Institution ranking	Total	Engi-neering	Physical sciences	Environ-mental sciences	Math & computer sciences	Life sciences	Psy-chology	Social sciences	Other sciences
Total, all institutions	4,728,642	1,681,437	1,868,667	298,529	716,795	130,556	947	23,291	8,420
1 Jet Propulsion Laboratory	1,078,776	446,930	117,953	94,715	419,178	0	0	0	0
2 Lawrence Livermore Lab	1,004,600	483,806	308,672	31,775	151,018	29,329	0	0	0
3 Los Alamos National Lab	902,361	311,332	447,515	5,787	78,701	33,178	0	22,762	3,086
4 Lincoln Laboratory	364,086	256,171	69,722	0	37,774	0	419	0	0
5 Argonne Natl Laboratory	343,280	140,174	104,184	81,907	5,065	11,950	0	0	0
6 Brookhaven Nat'l Lab 1/	255,206	38,736	186,165	7,832	594	21,220	0	429	230
7 Lawrence Berkeley Lab	193,183	152	146,526	10,794	1,895	28,712	0	0	5,104
8 Fermi Nat Accelerat Lab 2/	185,069	0	185,069	0	0	0	0	0	0
9 Plasma Physics Laboratory	112,557	0	112,557	0	0	0	0	0	0
10 Stfrd Linear Accelrtr Ctr	108,710	0	108,710	0	0	0	0	0	0
Total, 1st 10 insts.	4,547,828	1,677,301	1,787,073	232,810	694,225	124,389	419	23,191	8,420
11 Natl Ctr Atmospheric Rs 3/	63,317	0	0	63,317	0	0	0	0	0
12 Nat Opt Astro Obs 4/	27,599	0	27,599	0	0	0	0	0	0
13 Ames Laboratory	21,769	4,136	16,940	0	693	0	0	0	0
14 Software Engineering Inst	20,900	0	0	0	20,900	0	0	0	0
15 Nat'l Radio Astron Obs 1/	18,492	0	18,492	0	0	0	0	0	0
16 Continuous Elec Beam Aclr	13,228	0	12,251	0	977	0	0	0	0
17 Oak Ridge Associated U 5/	7,781	0	986	0	0	6,167	528	100	0
18 Nat'l Astron & Ionos Ctr	7,728	0	5,326	2,402	0	0	0	0	0
Total, 1st 18 insts.	4,728,642	1,681,437	1,868,667	298,529	716,795	130,556	947	23,291	8,420

1/ Associated Universities, Inc.

2/ Universities Research Association

3/ University Corporation for Atmospheric Research

4/ Association of Universities for Research in Astronomy, Inc.

5/ Oak Ridge Associated Universities

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

Table B-73. Total and federally financed R&D expenditures at university-administered federally funded research and development centers: fiscal years 1986-89

[Dollars in thousands]

Institution ranking	Total				Federally financed			
	1989	1988	1987	1986	1989	1988	1987	1986
Total, all institutions	4,728,642	4,530,562	4,206,084	3,894,806	4,691,232	4,498,909	4,174,718	3,862,913
1 Jet Propulsion Laboratory	1,078,776	1,059,250	915,527	842,627	1,078,776	1,059,250	915,527	842,627
2 Lawrence Livermore Lab	1,004,600	939,100	914,800	868,600	1,001,518	936,996	910,603	863,700
3 Los Alamos National Lab	902,361	882,431	835,306	777,531	888,534	872,906	827,280	766,905
4 Lincoln Laboratory	364,086	386,237	353,716	294,312	364,086	386,237	353,716	294,312
5 Argonne Natl Laboratory	343,280	303,273	276,605	259,384	335,512	297,786	271,112	252,337
6 Brookhaven Nat'l Lab 1/	255,206	234,206	220,529	212,211	255,206	234,206	220,529	212,211
7 Lawrence Berkeley Lab	193,183	183,223	174,450	169,336	184,338	176,031	167,602E	162,689E
8 Fermi Nat Accelerat Lab 2/	185,069	173,233	167,088	149,143	185,069	168,703	164,503	148,606
9 Plasma Physics Laboratory	112,557	103,483	107,184	102,440	112,158	103,080	106,107	101,870
10 Stfrd Linear Accelrtr Ctr	108,710	98,034	89,022	80,283	108,710	98,034	89,022	80,283
Total, 1st 10 insts.	4,547,828	4,362,470	4,054,227	3,755,867	4,513,907	4,333,229	4,026,001	3,725,540
11 Natl Ctr Atmospheric Rs 3/	63,317	58,216	52,307	54,138	61,481	56,850	51,158	53,278
12 Nat Opt Astro Obs 4/	27,599	24,925	25,632	26,206	27,599	24,925	25,632	26,206
13 Ames Laboratory	21,769	21,201	19,213	18,100	21,769	21,201	19,213	18,100
14 Software Engineering Inst	20,900	19,310	13,755	7,913	20,900	19,310	13,755	7,913
15 Nat'l Radio Astron Obs 1/	18,492	16,184	16,974	16,578	18,492	16,184	16,974	16,578
16 Continuous Elec Beam Aclr	13,228	12,464	NA	NA	12,202	11,595	NA	NA
17 Oak Ridge Associated U 5/	7,781	8,406	8,680	8,114	7,176	8,229	8,092	7,408
18 Nat'l Astron & Ionos Ctr	7,728	7,386	7,531	7,890	7,706	7,386	7,531	7,890
Total, 1st 18 insts.	4,728,642	4,530,562	4,198,319	3,894,806	4,691,232	4,498,909	4,168,356	3,862,913
Total, all other sampled insts.	0	0	7,765	0	0	0	6,362	0

1/ Associated Universities, Inc.

2/ Universities Research Association

3/ University Corporation for Atmospheric Research

4/ Association of Universities for Research in Astronomy, Inc.

5/ Oak Ridge Associated Universities

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore fiscal year 1989 comparisons with data reported in earlier years may be inappropriate in some areas.

Numbers followed by the letter "E" are estimated; numbers followed by "I" are imputed. "NA" indicates that data are not available; dashes followed by "C" indicate confidential data.

SOURCE: National Science Foundation, SRS

SECTION C. UNIVERSITY-ADMINISTERED FEDERALLY FUNDED RESEARCH AND DEVELOPMENT CENTERS: FY 1989

Department of Defense

Lincoln Laboratory (Massachusetts Institute of Technology)
Software Engineering Institute (Carnegie Mellon University)

Department of Energy

Ames Laboratory (Iowa State University of Science and Technology)
Argonne National Laboratory (University of Chicago and Argonne Universities Association)
Brookhaven National Laboratory (Associated Universities, Inc.)
Continuous Electron Beam Accelerator Facility (Southeastern Universities Research Association)
E. O. Lawrence Berkeley Laboratory (University of California)
E. O. Lawrence Livermore Laboratory (University of California)
Fermi National Accelerator Laboratory (Universities Research Association)
Los Alamos Scientific Laboratory (University of California)
Oak Ridge Institute of Nuclear Studies (Oak Ridge Associated Universities)
Plasma Physics Laboratory (Princeton University)
Stanford Linear Accelerator Center (Stanford University)

National Aeronautics and Space Administration

Jet Propulsion Laboratory (California Institute of Technology)

National Science Foundation

National Astronomy and Ionosphere Center (Cornell University)
National Center for Atmospheric Research (University Corporation for Atmospheric Research)
National Optical Astronomy Observatory (Association of Universities for Research in Astronomy, Inc.)
National Radio Astronomy Observatory (Associated Universities, Inc.)

SECTION D. SURVEY INSTRUMENTS

Page

Cover Letter 174

Survey Form 176

Crosswalk 182

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

Dear Colleague:

The National Science Foundation (NSF) requests your participation in the annual Survey of Scientific and Engineering (S/E) Expenditures at Universities and Colleges, Fiscal Year 1989. This national effort, one of a series that covers S/E resources at academic institutions, collects data on: current fund expenditures for separately budgeted research and development by S/E field and source of funds; current fund expenditures for related research equipment; and capital expenditures for facilities and equipment for research, development, and instruction by S/E field and source of funds.

The survey data are solicited under the authority of the National Science Foundation Act of 1950, as amended, and are for statistical use only. These data are used by Congress, other Federal and State governmental planners, and the academic sector to assess the adequacy of the nation's research base. By contributing timely and accurate information to this survey, you can ensure that your institution is represented in data used by these decision-makers. You may also find the data useful to your own institution for internal and/or peer analyses.

The survey results are representative of the national population of institutions that grant graduate S/E degrees and/or annually expend at least $50,000 in separately budgeted research and development funds. While participation is voluntary and failure to respond will not have any adverse effect upon your institution, the reliability of the data and therefore the soundness of institutional, State, and national decisions based upon them are in large measure contingent upon receipt of complete and accurate data from all surveyed institutions.

Survey results are distributed as rapidly as possible to maximize the utility of these data. Selected tables are initially made available in Preview form on the Science Resources Studies (SRS) Electronic Bulletin Board system, followed by publication of selected tables in an Early Release pamphlet. Highlights providing a brief analysis of the survey results in text, tables, and graphs are published next, followed by a detailed report on the survey containing a large number of statistical tables. Survey results are also available on magnetic tape or diskettes (ASCII or Lotus 1-2-3 format) and are entered on the SRS Electronic Bulletin Board for direct access via personal computer.

The survey questionnaire is due on January 7, 1990. This packet contains the following items, several of which are described in greater detail in the subsequent text.

1. *"FYI" flyer describing the NSF academic-survey system*
2. *1989 S/E Expenditures Survey Form 411, with instructions*
3. *Facsimile showing data reported on the FY 1986-88 surveys*
4. *NSF/NCES "Crosswalk" defining S/E disciplines*
5. *Postcard to notify NSF of package receipt*
6. *Envelope for returning the completed survey form*

POSTCARD

As soon as you receive this survey package, please let us know by filling out and mailing the postcard enclosed, stating the name and telephone number of the person responsible for completing the survey form.

THE 1989 SURVEY FORM 411 WITH INSTRUCTIONS

The 1989 survey form requests the same information as the 1988 form. Response burden information is included requesting an estimated average number of hours required to complete the survey. A survey-form facsimile that shows prior years' data received from your institution or imputed by NSF is enclosed for your information. Item 4 on Capital Expenditures will remain on the survey form for one more year. This decision is based on NSF's agreement with the academic community to provide one or more years' lead time before adding or discontinuing an item.

NSF/NCES CROSSWALK

The enclosed Crosswalk relates NSF's S/E fields to the codes designed by the Department of Education's National Center for Education Statistics (NCES) in its publication A Classification of Instructional Programs. It is provided to aid respondents whose institutional recordkeeping systems are organized according to NCES classifications.

An automated survey questionnaire (ASQ) has been developed to provide respondents with the opportunity to edit their data submissions (for both arithematical and trend errors) prior to sending them to NSF. Requirements for using ASQ include an IBM PC or compatible computer system and DOS 3.0 or a more recent upgrade. If you would like to receive ASQ (provided on diskette), please use the return postcard to request it.

If questions arise when completing the survey form or if you wish further information regarding our publications/ diskettes, please call Ms. Marge Machen of NSF at (202) 634-4673 or Ms. Linda James of Quantum Research Corporation at (301) 657-3070. Thank you for your efforts in providing timely and meaningful statistics to NSF.

Sincerely,

James B. Hoehn
Study Director
Universities and Colleges Studies Group
Division of Science Resources Studies

NSF Form 411 (10-89)

FORM APPROVED
OMB No. 3145-0010
Expiration Date: 2/28/90

NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550

SURVEY OF SCIENTIFIC AND ENGINEERING EXPENDITURES AT UNIVERSITIES AND COLLEGES, FY 1989

Please correct if name or address has changed

Organizations are requested to complete and return this form to the NSF contractor responsible for survey conduct:

QUANTUM RESEARCH CORPORATION (QRC)
7300 Pearl Street, Suite #210
Bethesda, MD 20814
[fax (301) 657-3862]

This form should be returned by January 7, 1990. Your cooperation in returning the survey questionnaire promptly is very important.

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended. All information you provide will be used for statistical purposes only. Your response is entirely voluntary and your failure to provide some or all of the informaiton will in no way adversely affect your institution.

All financial data requested on this form should be reported in thousands of dollars; for example, an expenditure of $25,342 should be rounded to the nearest thousand dollars and reported as $25.

Where exact data are not available, estimates are acceptable. Your estimates will be better than ours.

Include data for branches and all organizational units of your institution, such as medical schools and agricultural experiment stations. Data on research centers and facilities administered by your institution should be included. In addition, include hospitals or clinics owned, operated, or controlled by universities, and integrated operationally with the clinical programs of your medical schools. **Exclude** data for federally funded research and development centers (FFRDC's). Data for these facilities are collected separately. **If you have any questions please contact Marge Machen of NSF at (202) 634-4673 or Linda James of QRC at (301) 657-3070.**

Financial data are requested for your institution's 1989 fiscal year.

Please circle the month in which your institution's fiscal year begins:

1 JAN	2	3	4	5	6	7	8	9	10	11	12 DEC

It is estimated that response to this survey will require 19 hours. If you wish to comment on this burden, please contact Herman Fleming at (202) 357-9520.

Date Submitted ______________________

How many person hours were required to complete this form? ______________

Scope:

This survey collects data on expenditures by universities and colleges for separately budgeted research and development (R&D) in science and engineering. Definitions used are compatible with OMB Circular A-21, revised July 23, 1982. Items 1 and 2 ask for *current fund expenditures* by source of funds and by field of science/engineering. Item 3 collects data on that *portion* of *current fund expenditures* reported in items 1 and 2 that went for the purchase of scientific and engineering research equipment. Item 4 collects data on capital expenditures for facilities and equipment for research, development, and instruction by source of funds and field of science/engineering.

Definitions:

1. ***Research and Development*** (***R&D***). R&D for purposes of this survey is the same as "organized research" as defined in Section B.1.b. of OMB Circular A-21 (revised). It includes all R&D activities of an institution that are *separately budgeted and accounted for*. R&D includes both "sponsored research" activities (sponsored by Federal and non-Federal agencies and organizations) and "university research" (separately budgeted under an internal application of institutional funds).
    a. ***Research*** is a systematic study directed toward fuller knowledge or understanding of the subject studied. Research is classified as either basic or applied, according to the objectives of the investigator.
    b. ***Development*** is systematic use of the knowledge or understanding gained from research, directed toward the production of useful materials, devices, systems, or methods, including design and development of prototypes and processes.
2. ***Current fund expenditures.*** Expenditures of funds available for current operations. Such expenditures include all unrestricted gifts and restricted current funds to the extent that such funds were expended for current operating purposes.
3. ***Capital expenditures*** (for facilities and equipment). A capital expenditure as defined in Section J.13 of OMB Circular A-21 (revised) means the cost of the asset including the cost to put it in place. "Equipment" as a capital expenditure means an article of nonexpendable tangible personal property having a useful life of more than two years and an acquisition cost of $500 or more per unit; lower limits may be established, consistent with institutional policy.

PLEASE TYPE OR PRINT NAME OF PERSON SUBMITTING THIS FORM	TITLE	AREA CODE	EXCH.	NO.	EXT.
NAME OF PERSON WHO PREPARED THIS SUBMISSION (if different from above)	TITLE	AREA CODE	EXCH.	NO.	EXT.

Instructions for Items 1 and 2

Separately budgeted research and development (R&D) includes all funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. *Include* research equipment purchased under research project awards from "current fund" accounts. Also *include* research funds subcontracted to outside organizations. *Exclude* training grants, public service grants, demonstration projects, and departmental research expenditures that are not separately budgeted. Also, *exclude* any R&D expenditures in the fields of education, law, humanities, music, the arts, physical education, library science, and all other nonscience fields. Allocate funding to the original sources whenever possible, as specified below. If this information is unknown, report the proximate funding source.

(1) *Total*

a. *Federal Government.* Report grants and contracts for R&D (including direct and reimbursed indirect costs) by all agencies of the Federal Government.

b. *State and local governments.* Include funds for R&D from State, county, municipal, or other local governments and their agencies. Include here State funds which support R&D at agricultural and other experiment stations.

c. *Industry.* Include all grants and contracts for R&D from profitmaking organizations, whether engaged in production, distribution, research, service, or other activities. Do not include grants and contracts from nonprofit foundations financed by industry; these should be reported under *All other sources* (line 1175).

d. *Institutional funds.* Report funds, including indirect costs, which your institution spent for R&D activities from the following sources: (1) General-purpose State or local government appropriations (i.e., unrestricted funds); (2) general-purpose grants from industry, foundations, or other outside sources; (3) tuition and fees; (4) endowment income. In addition, estimate your institution's contribution to unreimbursed indirect costs incurred in association with R&D projects financed by outside organizations, and mandatory cost sharing on Federal and other grants. To estimate unreimbursed indirect costs, use your **actual** university **indirect cost rate** (rather than the proposed rate) multiplied by the base (e.g., direct salaries and wages, etc.) minus actual indirect cost recoveries. If your institution now separately budgets what was previously classified as departmental research, these data should be included in line 1161.

e. *All other sources.* Include grants for R&D from nonprofit foundations and voluntary health agencies as well as from all other sources not elsewhere classified. Funds from foundations which are affiliated with, or granted solely to your institution, should be included under line 1160, Institutional funds. Funds for R&D received from a health agency that is a unit of a State or local government should be reported under State and local governments (line 1125). Also include gifts from individuals that are restricted by the donor to research.

(2) *Basic research.* **Distinguish basic from nonbasic (i.e., applied) research, as defined in column (2) below.**

ITEM 1. CURRENT FUND EXPENDITURES FOR SEPARATELY BUDGETED RESEARCH AND DEVELOPMENT IN THE SCIENCES AND ENGINEERING, BY SOURCE OF FUNDS, FY 1989 (Include indirect costs)

Source of funds		(1) Total (Dollars in thousands)	(2) Basic research (Percent of column 1)
a. Federal Government	1110	$	________ %
*b. State and local governments	1125		**Basic research** is directed toward an increase of knowledge; it is research where the primary aim of the **investigator** is a fuller knowledge or understanding of the subject under study rather than a specific application thereof.
c. Industry	1150		
d. Institutional funds	1160		
(1) Separately budgeted	1161		
(2) Underrecovery of indirect costs and cost sharing	1162		
*e. All other sources	1175		
f. TOTAL (sum of a through e)	1100	$	________ %

*Combined data cell (See instructions for b and e).

CONFIDENTIALITY

Information received from individual institutions in lines 1161 and 1162, or estimates for basic research expenditures, will **not** be published or released; only aggregate totals will appear in tabulations.

Total R&D expenditures reported in line 1100, column (1) and line 1400, column (1) should be the same.

Federally financed R&D expenditures reported in line 1110, column (1) and line 1400, column (2) should be the same.

ITEM 2. CURRENT FUND EXPENDITURES (TOTAL AND FEDERALLY FINANCED) FOR SEPARATELY BUDGETED RESEARCH AND DEVELOPMENT, BY FIELD OF SCIENCE/ENGINEERING: FY 1989

(Include indirect costs)*

Field of science/engineering		(Dollars in thousands) (1) Total	(2) Federal
a. ENGINEERING (TOTAL)	1410	$	$
(1) Aeronautical & astronautical	1411		
(2) Chemical	1412		
(3) Civil	1413		
(4) Electrical	1414		
(5) Mechanical	1415		
(6) Other	1416		
b. PHYSICAL SCIENCES (TOTAL)	1420		
(1) Astronomy	1421		
(2) Chemistry	1422		
(3) Physics	1423		
(4) Other	1424		
c. ENVIRONMENTAL SCIENCES (TOTAL)	1430		
(1) Atmospheric	1431		
(2) Earth sciences	1432		
(3) Oceanography	1433		
(4) Other	1434		
d. MATHEMATICAL SCIENCES (TOTAL)	1441		
e. COMPUTER SCIENCES (TOTAL)	1442		
f. LIFE SCIENCES (TOTAL)	1450		
(1) Agricultural	1451		
(2) Biological	1452		
(3) Medical	1453		
(4) Other	1454		
g. PSYCHOLOGY (TOTAL)	1460		
h. SOCIAL SCIENCES (TOTAL)	1470		
(1) Economics	1471		
(2) Political science	1472		
(3) Sociology	1473		
(4) Other	1474		
i. OTHER SCIENCES, not elsewhere classified (TOTAL)	1480		
j. TOTAL (sum of a through i)	1400	$	$

*PLEASE EXCLUDE from your response any R&D expenditures in the fields of education, law, humanities, music, the arts, physical education, library science, and all other non-science/engineering fields.

ITEM 3. CURRENT FUND EXPENDITURES FOR RESEARCH EQUIPMENT (TOTAL AND FEDERALLY FINANCED) FOR SEPARATELY BUDGETED RESEARCH AND DEVELOPMENT, BY FIELD OF SCIENCE/ENGINEERING: FY 1989*

(See page 5 for instructions.)

Field of science/engineering		(Dollars in thousands)	
		(1) Total	(2) Federal
a. ENGINEERING (TOTAL)	1810	$	$
(1) Aeronautical & astronautical	1811		
(2) Chemical	1812		
(3) Civil	1813		
(4) Electrical	1814		
(5) Mechanical	1815		
(6) Other	1816		
b. PHYSICAL SCIENCES (TOTAL)	1820		
(1) Astronomy	1821		
(2) Chemistry	1822		
(3) Physics	1823		
(4) Other	1824		
c. ENVIRONMENTAL SCIENCES (TOTAL)	1830		
(1) Atmospheric	1831		
(2) Earth sciences	1832		
(3) Oceanography	1833		
(4) Other	1834		
d. MATHEMATICAL SCIENCES (TOTAL)	1841		
e. COMPUTER SCIENCES (TOTAL)	1842		
f. LIFE SCIENCES (TOTAL)	1850		
(1) Agricultural	1851		
(2) Biological	1852		
(3) Medical	1853		
(4) Other	1854		
g. PSYCHOLOGY (TOTAL)	1860		
h. SOCIAL SCIENCES (TOTAL)	1870		
(1) Economics	1871		
(2) Political science	1872		
(3) Sociology	1873		
(4) Other	1874		
i. OTHER SCIENCES, not elsewhere classified (TOTAL)	1880		
j. TOTAL (sum of a through i)	1800	$	$

*Current fund expenditures in each field for scientific research equipment should be a **subset** of the "Total" and "Federal" column reported in item 2.

Item 3 Instructions

Please report that **portion** of current fund expenditures reported in items 1 and 2 that went for the purchase of research equipment. This includes all research equipment purchased under sponsored research project awards from current fund accounts.

NOTE: These research equipment expenditures are **not** to be included under capital expenditures reported in item 4.

For column (1) report current fund expenditures for R&D from all sources: Federal Government, State, county, municipal, or other governments and their agencies (including State funds supporting R&D at agricultural experiment stations); industry; institutional funds; and private foundations and voluntary health agencies, individuals, and associations.

For column (2) include funds from grants and contracts for R&D sponsored by agencies of the Federal Government.

Item 4 Instructions

Please report expenditures for facilities that were in process or completed during FY 1989.

Capital expenditures for facilities and equipment **include** the following: (a) Fixed equipment such as built-in equipment and furnishings; (b) movable scientific equipment such as oscilloscopes and pulse-height analyzers; (c) movable furnishings such as desks; (d) architect's fees, site work, extension of utilities, and the building costs of service functions such as integral cafeterias and bookstores of a facility; (e) facilities constructed to house separate components such as medical schools and teaching hospitals; and (f) special separate facilities used to house scientific apparatus such as accelerators, oceanographic vessels, and computers.

Expenditures for administration buildings, steam plants, residence halls, and other such facilities should be **excluded** unless used principally for research, development, or instruction in the sciences and engineering. Land costs should be **excluded.**

REMINDER: Exclude research equipment purchased under research project awards from current fund accounts that are reported under items 1, 2, and 3.

ITEM 4. CAPITAL EXPENDITURES FOR FACILITIES AND EQUIPMENT FOR RESEARCH, DEVELOPMENT, AND INSTRUCTION, BY FIELD OF SCIENCE/ENGINEERING AND SOURCE OF FUNDS, FY 1989

Field of science/engineering		(Dollars in thousands) Total (1)	Federal (2)	All other sources (3)
a. Engineering	1710	$	$	$
b. Physical sciences	1720			
c. Environmental sciences	1730			
d/e. Mathematical and computer sciences	1740			
f. Life sciences	1750			
g. Psychology	1760			
h. Social sciences	1770			
i. Other sciences, n.e.c.	1780			
j. Total (sum of a through i)	1700	$	$	$

The illustrative disciplines provided below under each of these detailed fields are intended to be guidelines—*not* sharp definitions—as to what should be reported under a particular field; they represent examples of disciplines generally classified under each detailed field. Also, see enclosed "Crosswalk" between NSF field of science/engineering codes and the codes designed by the Department of Education's National Center for Education Statistics (NCES) in its publication, *Classification of Instructional Programs.*

ILLUSTRATIVE DISCIPLINES

a. Engineering	
(1) Aeronautical & astronautical	Aerodynamics, aerospace, space technology
(2) Chemical	Petroleum, petroleum refining process
(3) Civil	Architectural, hydraulic, hydrologic, sanitary and environmental, structural transportation
(4) Electrical	Communication, electronic, power
(5) Mechanical	Engineering mechanics
(6) Other	Agricultural, ceramic, industrial and management, marine, metallurgical and materials, mining, nuclear, ocean engineering systems, polymer, textile, welding
b. Physical sciences	
(1) Astronomy	Astrophysics, optical and radio, x-ray, gamma-ray, neutrino
(2) Chemistry	Inorganic, organo-metallic, organic, physical, analytical, pharmaceutical, polymer sciences (exclude biochemistry)
(3) Physics	Acoustics, atomic and molecular, condensed matter, elementary particles, nuclear structure, optics, plasma
(4) Other	Used for multidisciplinary projects within physical sciences and for disciplines not requested separately
c. Environmental sciences	
(1) Atmospheric	Aeronomy, solar, weather modification, extraterrestrial atmospheres, meteorology
(2) Earth sciences	Engineering geophysics, general geology, geodesy and gravity, geomagnetism, hydrology, inorganic geochemistry, isotopic geochemistry, organic geochemistry, lab geophysics, paleomagnetism, paleontology, physical geography and cartography, seismology
(3) Oceanography	Biological oceanography, chemical oceanography, geological oceanography, physical oceanography, marine geophysics
(4) Other	Used for multidisciplinary projects within environmental sciences
d. Mathematical Sciences	Algebra, analysis, applied mathematics, foundations and logic, geometry, numerical analysis, statistics, topology
e. Computer sciences	Design, development, and application of computer capabiities to data storage and manipulation, information science
f. Life sciences	
(1) Agricultural	Agricultural chemistry, agronomy, animal science, conservation, fish and wildlife, food science, forestry, horticulture, plant science, soil science
(2) Biological	Anatomy, biochemistry, biophysics, biogeography, ecology, embryology, entomology, genetics, immunology, microbiology, nutrition, parasitology, pathology, pharmacology, physical anthropology, physiology, botany, zoology, veterinary biology
(3) Medical	Anesthesiology, cardiology, endocrinology, gastroenterology, hematology, neurology, obstetrics, ophthalmology, preventive medicine and community health, psychiatry, radiology, surgery, veterinary medicine,[1] dentistry, pharmacy
(4) Other	Used for multidisciplinary projects within life sciences
g. Psychology	Animal behavior, clinical, educational, experimental, human development and personality, social
h. Social sciences	
(1) Economics	Econometrics, international, industrial, labor, agricultural, public finance and fiscal policy
(2) Political science	Regional studies, comparative government, international relations, legal systems, political theory, public administration
(3) Sociology	Comparative and historical, complex organizations, culture and social structure, demography, group interactions, social problems and welfare, theory
(4) Other	History of science, cultural anthropology, lingistics, socioeconomic geography
i. Other sciences, n.e.c.	To be used when the multidisciplinary and interdisciplinary aspects make the classification under one primary field impossible

---

[1] Institutions with schools of veterinary medicine should distribute R&D expenditures among the appropriate disciplines (agricultural, biological, and medical) rather than only in medical sciences.

CROSSWALK BETWEEN NSF FIELD OF SCIENCE/ENGINEERING CODES AND THE NCES CLASSIFICATION OF INSTRUCTIONAL PROGRAMS

SAMPLE LISTING:

Last 2 digits of line code on NSF questionnaire → 33

NSF Field Description ↓ OCEANOGRAPHY

26.0607 MARINE BIOLOGY
40.0702 OCEANOGRAPHY
{ NCES fields which are included within the preceding NSF category

↑ NCES Codes ↑ NCES Field Description

10	**ENGINEERING, TOTAL**	
11	AEROSPACE	
	14.02	AEROSPACE, AERONAUTICAL, AND ASTRONAUTICAL ENGINEERING
12	CHEMICAL	
	03.0509	WOOD SCIENCE
	14.07	CHEMICAL ENGINEERING
	14.25	PETROLEUM ENGINEERING
13	CIVIL	
	04.02	ARCHITECTURE
	14.04	ARCHITECTURAL ENGINEERING
	14.08	CIVIL ENGINEERING
	14.14	ENVIRONMENTAL HEALTH ENGINEERING
14	ELECTRICAL	
	14.09	COMPUTER ENGINEERING
	14.10	ELECTRICAL, ELECTRONICS, AND COMMUNICATIONS ENGINEERING
15	MECHANICAL	
	14.11	ENGINEERING MECHANICS
	14.19	MECHANICAL ENGINEERING
16	OTHER ENGINEERING	
	14.01	ENGINEERING, GENERAL
	14.03	AGRICULTURAL ENGINEERING
	14.05	BIOENGINEERING AND BIOMEDICAL ENGINEERING
	14.06	CERAMIC ENGINEERING
	14.12	ENGINEERING PHYSICS
	14.13	ENGINEERING SCIENCE
	14.15	GEOLOGICAL ENGINEERING
	14.16	GEOPHYSICAL ENGINEERING
	14.17	INDUSTRIAL ENGINEERING
	14.18	MATERIALS ENGINEERING
	14.20	METALLURGICAL ENGINEERING
	14.21	MINING AND MINERAL ENGINEERING
	14.22	NAVAL ARCHITECTURE & MARINE ENGINEERING
	14.23	NUCLEAR ENGINEERING
	14.24	OCEAN ENGINEERING
	14.27	SYSTEMS ENGINEERING
	14.28	TEXTILE ENGINEERING
	14.99	ENGINEERING, OTHER
	19.0901	TEXTILE AND CLOTHING
	30.03	ENGINEERING & OTHER DISCIPLINES
	30.06	SYSTEMS SCIENCE
	40.0701	METALLURGY
20	**PHYSICAL SCIENCES, TOTAL**	
21	ASTRONOMY	
	40.02	ASTRONOMY
	40.03	ASTROPHYSICS
	40.09	PLANETARY SCIENCE
22	CHEMISTRY	
	40.05	CHEMISTRY
23	PHYSICS	
	40.08	PHYSICS
24	OTHER PHYSICAL SCIENCES	
	40.0799	MISCELLANEOUS PHYSICAL SCIENCE, OTHER
	40.01	PHYSICAL SCIENCES, GENERAL
	40.99	PHYSICAL SCIENCES, OTHER
30	**ENVIRONMENTAL SCIENCES, TOTAL**	
31	ATMOSPHERIC	
	40.04	ATMOSPHERIC SCIENCE & METEOROLOGY
32	EARTH	
	14.26	SURVEYING AND MAPPING SCIENCES
	40.06	GEOLOGICAL SCIENCES
33	OCEANOGRAPHY	
	26.0607	MARINE BIOLOGY
	40.0702	OCEANOGRAPHY
34	OTHER ENVIRONMENTAL SCIENCES	
41	**MATHEMATICAL SCIENCES, TOTAL**	
	06.1302	OPERATIONS RESEARCH (QUANTITATIVE METHODS)
	27	MATHEMATICS
42	**COMPUTER SCIENCES, TOTAL**	
	06.12	MANAGEMENT INFORMATION SYSTEMS
	11	COMPUTER & INFORMATION SCIENCE, GENERAL
50	**LIFE SCIENCES, TOTAL**	
51	AGRICULTURAL	
	01.03	AGRICULTURAL PRODUCTION
	01.0303	AQUACULTURE
	01.07	INTERNATIONAL AGRICULTURE
	02	AGRICULTURAL SCIENCES
	03	RENEWABLE NATURAL RESOURCES
	04.06	LANDSCAPE ARCHITECTURE
52	BIOLOGICAL	
	18.0201	CLINICAL ANATOMY
	18.0202	CLINICAL BIOCHEMISTRY
	18.0203	CLINICAL MICROBIOLOGY
	18.0204	CLINICAL PATHOLOGY
	18.0205	PHYSIOLOGY

	18.0206	CLINICAL TOXICOLOGY
	18.06	EPIDEMIOLOGY
	18.1002	ALLERGIES AND ENDOMOLOGY
	18.06	EPIDEMIOLOGY
	18.1002	ALLERGIES AND ENDOMOLOGY
	18.1009	IMMUNOLOGY
	18.1018	PATHOLOGY
	19.05	FOOD SCIENCE & HUMAN NUTRITION
	20.0108	FOOD AND NUTRITION
	26.0302	BACTERIOLOGY
	26.0601	ANATOMY
	26.0602	BIOMETRICS AND BIOSTATISTICS
	26.0603	ECOLOGY
	26.0604	EMBRYOLOGY
	26.0606	HISTOLOGY
	26.0609	NUTRITIONAL SCIENCES
	26.0610	PARASITOLOGY
	26.0612	TOXICOLOGY
	26.0699	MISCELLANEOUS SPECIALIZED AREAS/ LIFE SCIENCE/OTHER
	26.0701	ZOOLOGY
	26.0702	ENTOMOLOGY
	26.0703	GENETICS, HUMAN AND ANIMAL
	26.0704	PATHOLOGY, HUMAN AND ANIMAL
	26.0705	PHARMACOLOGY, HUMAN AND ANIMAL
	26.0706	PHYSIOLOGY, HUMAN AND ANIMAL
	26.0799	ZOOLOGY, OTHER
	26.01	BIOLOGY, GENERAL
	26.02	BIOCHEMISTRY AND BIOPHYSICS
	26.03	BOTANY
	26.04	CELL AND MOLECULAR BIOLOGY
	26.05	MICROBIOLOGY
	42.14	PSYCHOPHARMACOLOGY
	26.99	LIFE SCIENCES, OTHER
53	MEDICAL	
	18.0299	BASIC CLINICAL HEALTH SCIENCES, OTHER
	18.04	DENTISTRY
	18.08	HEMATOLOGY
	18.1001	MEDICINE, GENERAL
	18.1003	ANESTHESIOLOGY
	18.1004	COLON AND RECTAL SURGERY
	18.1005	DERMATOLOGY
	18.1007	FAMILY PRACTICE
	18.1008	GERIATRICS
	18.1010	INTERNAL MEDICINE
	18.1011	NEUROLOGICAL SURGERY
	18.1012	NUCLEAR MEDICINE
	18.1013	OBSTETRICS AND GYNECOLOGY
	18.1014	OPHTHALMOLOGY
	18.1015	ORTHODONTIC SURGERY
	18.1016	ORTHOPEDIC
	18.1017	OTORHINOLARYNGOLOGY/ OTOLARYNGOLOGY
	18.1019	PEDIATRICS
	18.1020	PHYSICAL MEDICINE & REHABILITATION
	18.1021	PLASTIC SURGERY
	18.1022	PREVENTIVE MEDICINE
	18.1023	PSYCHIATRY
	18.1024	NEUROLOGY
	18.1025	RADIOLOGY
	18.1026	SURGERY
	18.1027	THORACIC SURGERY
	18.1028	UROLOGY
	18.1099	MEDICINE, OTHER
	18.1106	PSYCHIATRY/MENTAL HEALTH
	18.12	OPTOMETRY
	18.13	OSTEOPATHIC MEDICINE
	18.14	PHARMACY
	18.15	PODIATRY
	18.24	VETERINARY MEDICINE
	20.0102	CHILD DEVELOPMENT CARE AND GUIDANCE
	26.0605	ENDOCRINOLOGY
	26.0608	NEUROSCIENCES
	26.0611	RADIOBIOLOGY
54	OTHER LIFE SCIENCES	
	17.0807	OCCUPATIONAL THERAPY
	17.0813	PHYSICAL THERAPY
	17.0899	REHABILITATION SERVICES, OTHER
	17.99	ALLIED HEALTH, OTHER
	18.01	AUDIOLOGY AND SPEECH PATHOLOGY
	18.07	HEALTH SCIENCES ADMINISTRATION
	18.09	MEDICAL LABORATORY
	18.11	NURSING
	18.22	PUBLIC HEALTH
	18.99	HEALTH SCIENCES, OTHER
60	**PSYCHOLOGY**	
	13.08	SCHOOL PSYCHOLOGY
	17.0801	ART THERAPY
	42	PSYCHOLOGY
70	**SOCIAL SCIENCES, TOTAL**	
71	ECONOMICS	
	01.0103	AGRICULTURAL ECONOMICS
	06.05	BUSINESS ECONOMICS
	45.06	ECONOMICS
72	POLITICAL SCIENCE	
	44.01	PUBLIC AFFAIRS, GENERAL
	44.03	INTERNATIONAL PUBLIC SERVICE
	44.04	PUBLIC ADMINISTRATION
	44.99	PUBLIC AFFAIRS, OTHER
	44.05	PUBLIC POLICY STUDIES
	45.09	INTERNATIONAL RELATIONS
	45.10	POLITICAL SCIENCE & GOVERNMENT
73	SOCIOLOGY	
	45.05	DEMOGRAPHY
	45.11	SOCIOLOGY
74	OTHER SOCIAL SCIENCES	
	04.03	CITY, COMMUNITY & REG/PLANNING
	05	AREAS AND ETHNIC STUDIES
	06.06	HUMAN RESOURCES DEVELOPMENT
	06.15	ORGANIZATIONAL BEHAVIOR
	42.12	PSYCHOLINGUISTICS
	43.01	CRIMINAL JUSTICE
	44.02	COMMUNITY SERVICES
	44.07	SOCIAL WORK
	45.01	SOCIAL SCIENCES, GENERAL
	45.02	ANTHROPOLOGY
	45.03	ARCHEOLOGY
	45.04	CRIMINOLOGY
	45.07	GEOGRAPHY
	45.12	URBAN STUDIES
	45.99	SOCIAL SCIENCES, OTHER
80	**OTHER SCIENCES, TOTAL (not elsewhere classified)**	